FEDERAL DEMOCRATIC REPUBLIC OF NEPAL
MINISTRY OF URBAN DEVELOPMENT
DEPARTMENT OF WATER SUPPLY AND SEWERAGE

THE PROJECT FOR CAPACITY DEVELOPMENT ON WATER SUPPLY IN SEMI-URBAN AREAS IN NEPAL

FINAL REPORT

(APPENDIX)

October 2013

JAPAN INTERNATIONAL COOPERATION AGENCY
NJS CONSULTANTS CO., LTD.

NP
JR
13-001

Table of Contents

Appendix-1

- Minutes of Meeting of Liaison Conference -

Annex 2-1

Government of Nepal
Ministry of Physical Planning and Works
Department of Water Supply and Sewerage
Maharajgunj, Kathmandu, Nepal

Phone No. 4-413744, 4-414539, 4-418253, 4-444433, 4-413670

Fax No. 4-419802

Ref. No. PWT-010/2010

Date: September 19, 2010

To,
Mr. Satoshi Shibazaki, Team Leader,
JICA Expert Team/ NJS Consultants Co.,Ltd.

Subject: WUSC Liaison Conference Outcomes and Decisions

Dear Mr. Shibazaki,

As you know, a WUSC Liaison Conference was organized on September 14, 2010 at Biratnagar. The Regional Chief of ERMSO, Divisional Chiefs of Morang and Jhapa WSSDOs, Chairpersons and other personnel of Mangadh, Dhulabari and Gauradaha WUSCs, Team Leaders of PWTand JICA Expert Team and other members of PWT had participated in the conference. The attendance sheet of the participants along with the summary of outcomes and decisions of the meeting are attached herewith for your perusal.

Thank you for your continuous support and cooperation.

Sincerely yours,

(Deepak Puri)
Section Chief /PWT Team Leader
Foreign Aid Coordination and Planning Section

CC: Mr. Binod Chandra Jha, Project Manager/DDG, DWSS

Outcomes and Decisions of WUSC Liaison Conference
Biratnagar, September 14, 2010

The WUSC Liaison Conference for the Project for Capacity Development on Water Supply in Semi-Urban Areas in Nepal was organized on September 14, 2010 in Water Supply and Sanitation Division Office at Biratnagar. The conference was aimed to initiate a system of information sharing and to develop mutual relationship between WSSDOs and WUSCs.

The Regional Chief of ERMSO, Divisional Chiefs of Morang and Jhapa WSSDOs, Chairpersons and other personnel of Mangadh, Dhulabari and Gauradaha WUSCs, PWT Team Leader and members and Team Leader of JICA Expert Team were present in the Conference. The participants in the meeting exchanged information and views and discussion went on very lively. The outcomes and decisions of the meeting are as follows.

- PWT Team Leader Mr. D. Puri highlighted the purpose and necessity of the Conference.
- ERMSO Regional Chief Mr. R.C. Sah highlighted the need of experience sharing between WUSCs for the improvement of their management capability.
- Chairpersons of Mangadh, Dhulabari and Gauradaha WUSCs briefly described the operation and management status of their systems and highlighted the existing problems and constraints. They also discussed on the contents and methods of the OJT.
- All the chairpersons and participants from WUSCs agreed that the training and seminar conducted so far by JICA have provided opportunities to gain knowledge and have been very fruitful towards effective and successful operation and maintenance of the systems. General remarks made on the OJT were
    - Training and seminar must be continued.
    - To establish good communication between the trainer and trainees and to understand the subject in depth, interpreter should be able to explain the subject matter in simple and understandable way. Interpreter with technical know how on the subject should be preferred.
    - Hands out given during training should contain the subject matter in details so that it could be used for reference in future.
    - Practical classes should be included in the training program.
- Chairperson of Mangadh WUSC Mr. R.B. Ghimire informed that the information and data included in some of the documents distributed during training did not match to the real one and suggested to verify it before distribution not to create confusion.
- Morang WSSDO Chief Mr. S.P. Upadhyaya suggested for the liaison capacity development.
- Jhapa WSSDO Chief Mr. J.N. Purbey indicated the need of vision paper and strategy for the liaison conference.
- On the remarks of Gauradaha WUSC Manager Mr. S.P.Tajpuriya that they could not grasp the concept of chlorination during training and they still do not know how to prepare chlorine solution and dosing properly, Mangadh WUSC Chairperson Mr. R.B. Ghimire responded him and said that he himself and his staff are ready to teach them practically if they are willing to learn. He invited them to WUSC Mangadh.
- The meeting decided to form a committee with eleven members including a chairperson, vice-chairperson and secretary for future liaison conference. The Committee shall consists of

Chairperson and Secretary from each 3 WUSCs	6
Regional Chief of ERMSO	1
Division Chiefs of WSSDOs Morang and Jhapa	2
Team Leader/Representative from PWT	1
Representative from JICA/JICA Expert Team	1

- The meeting selected chairperson, vice-chairperson and secretary unanimously for the newly formed Committee as follows

    - Chairperson — Mr. R.B. Ghimire, Chairperson, Mangadh WUSC
    - Vice-Chairperson — Mr. R.K. Basnet, Chairperson, Gauradaha WUSC
    - Secretary — Mr. I.B. Bodetholki, Secretary, Dhulaberi WUSC

- The other decisions regarding future liaison conference, taken in the meeting are as follows
    - Liaison conference shall be organized twice every year
    - Next conference shall be held tentatively on December 2010 at Biratnagar
    - All WUSCs of Jhapa, Morang and Sunsari selected for capacity development by DWSS and relevant stakeholders shall be invited in the conference
    - DWSS prepares a vision paper for the conference
    - Based on the vision paper, strategy, rules and regulations shall be decided by the committee.
    - WSSDO Morang serves as a link office to liaise between the members of the Committee for the organization of the scheduled conference.
- The meeting concluded with closing remarks from ERMSO Regional Chief.

LIAISON CONFERENCE
BIRATNAGAR

Sep. 14. 2010

PARTICIPANTS ATTENDANCE | Name of Meeting: | Date:

NAME	ORGANIZATION	POSITION	SIGNATURE
Ram Chandra Sah	ERMSO	Regional Chief	[illegible] 9852052
[illegible]	[illegible]	[illegible]	[illegible] 9852 208
Shyam Pd. Upadhyay	WSSDO, Morang	Division Chief	[illegible] 9841 4473
Jagannath Dubey	WSSDO, Jhapa	Division chief	[illegible] 98526344
[illegible]	[illegible]	[illegible]	[illegible] 98426297
Ram Ghimire	Mangadh Morang	chairperson	[illegible] 9852025
Rajit Ojha	ERMSO	Engineer	[illegible] 98 4206
Durga Chapagain	mangadh	secretary	Durga 984213
[illegible]	Dhulabari	member	[illegible]
Binu Bajracharya Kunwar	MoPPW	Divisional Engineer	Binu 97410 271
Shree Pra. [illegible]	WUSC [illegible]	manager	[illegible] 9842658
[illegible]	NTS	TL	[illegible]
Deepak Puri	DWSS	SDE / PMT Team Leader	[illegible] 9841253890

August 14th 2011
Venue: Udgyog Sangsthan, Biratnagar

Monitoring & Evaluation Liaison Conference Memorandum

Host Organization
The monitoring & evaluation group consisting of Mr. Deepak Puri, Senior Divisional Engineer and team leader from DWSS, Ms. Binu Bajracharya, Divisional Engineer from MoPPW, Mr. Shyam Prasad Upadhyaya, Division Chief Morang, Mr. Jagannath Purbey, Division Chief Jhapa, and Mr. Devkant Chaudhary, Engineer of ERSMO, Dhankuta. Mr. Deepak Puri was appointed to Chair the Conference.

Objectives of the Conference
To review the outcomes of the evaluation and monitoring in the three different WUSCs,
To find the measures to minimize/rectify the loopholes that played roles in the achievement of the objectives set by the JICA experts during the Second Phase of their implementation.

Participants
See the Attendance Sheet.

Proceedings
The conference was conducted under the chairmanship of Mr. Deepak Puri, and special guest was Mr. Taoka, the Team Leader, NJS consultants. Mr. Upadhyay, the Division Chief, Morang facilitated the conference.
Each of the three WUSCs' representatives were present at the conference and were allowed time to express their views and experiences.

Speaker: Chairperson of Mangadh WUSC, Mr. Ram Bahadur Ghimire
He offered his wholehearted thankfulness to the JICA experts who not only launched the project in the Water and Sanitation area but also conducted many trainings, workshops and OJTs to enhance the operational and managerial capacity to the organization and capacity building to the personnel working there.
He had the view that they have been facilitated and made able to handle the project to a great extent because of the trainings and workshops conducted by the JICA experts. In spite of frequent trainings, workshops and OJTs to the technicians and the Committee Members, they have many obstacles like socio-economic condition of the local people, rapid population growth, lack of sufficient fund to develop further production and distribution facilities and launch large scale business etc. which are hindering them from achieving their objectives.

Speaker: Member of Dhulabari WUSC Mr. Tek Nath Pokhrel.
He expressed his gratefulness for the JICA expert team who has been working hard throughout the year to help capacity building to both the organization and the technicians working at WUSC. It was the experts' regular and motivating trainings, workshops and OJTs that has helped them a lot to make self-helped to a great extent. They have been

successful in maintaining and improving water quality, management, staff-regulations, annual reporting, and water meter maintainance, and taking care of other facilities. He urged that such programs are to be continued in the days to come.

Speaker: Gauradaha WUSC Chairperson Mr. Govinda Bahadur Khadka
He said it was only JICA project that made them able to extend their capacity from 300 taps to nearly 1000 in two years' time. After implementing the project, JICA has regularly conducted trainings, workshops and OJTs continuously which have built capacity in running the committee smoothly and confidence in the technicians to work better than ever before. The managerial efficiency has developed a lot after the trainings given to the members of the committee. He too didn't forget to emphasize to continue such programs in future.

Besides the three above-mentioned WUSCs, there were other six WUSCs from Jhapa and Morang district that took part in the liaison conference. They also shared the experiences and exchanged their ideas too. Many of their quests were answered by Mr. Puri and Mr.Upadhyaya of DWSS and Morang. The other representatives were from Shanischare, Budhabare, and Lakhanpur from Jhapa and Salakpur, Urlabari, Letang WUSCs from Morang District. They felt that they also need such trainings to build their capacity and improve their management along with other operational and maintenance in water quality and facilities.
The next speaker was Ms. Binu Bajracharya. She thanked all the participants for taking part and sharing/exchanging their experiences among each other. She said she was glad that all the WUSCs and their representatives were conscious in supplying and using pure and safe water. She expressed that she found all the three WUSCs showed better performance and working hard following the instructions given by the JICA experts during the trainings. During her interviews with the technicians and the WUSC Members, her experience was much more impressive than her expectations. She found them quite aware of their duty and field.

Speaker: Mr. Puri
He gave a thanking speech to the participants. But before he ended he didn't forget to recommend that the questionnaire prepared for WUSC Members and technicians should be made separate and be written in Nepali more clearly. Many questions were answered below average only because they didn't get the real sense of them. When they were asked with elaboration, the answers were improved and corrected. After all, his experience during the evaluation and monitoring this time was much more satisfactory than he had last year. He also found that the interpretation during the workshop this year was more effective and useful than it was in the previous year. And he added the interpreter also deserves credit for the effectiveness of the workshops.

Memorandum of the 3rd Liaison Conference

Date: 9th feb, 2012
Venue: Chamber of commerce
Sanihat, Biratnagar

A) Main points from the Morang divisional Chief, Mr. Shyam Pd. Upadhyay

- Aim of capacity development programs is to provide various trainings to all the members of the consumer committee which helps them in developing their capacity and transfer their learning gradually to other committee as well.
- The entry points of this project Capacity development are Dhulabari, Gauradaha, Mangadh. Now, we have targeted to extend this project in 20 other WUSCs of Jhapa, Morang districts and finally throughout the country.
- The packages (OJT and Training) which have been prepared by JICA experts are significant.
- He expressed his ideas that the benefits of the trainings and OJT, provided by JICA must be shred to other projects as well.
- He also added that they are aiming to transfer the achievement received by Jhapa and Morang to other WUSC's as well.
- Our main objective is to make a model for the capacity development from lessons learnt from 3 WUSCs and then implement to other projects as well.
- He expected that it will be good example after developing management model. And he pointed that this model will help WUSC to be self sustainable.
- In these 2 years, we have learned many things and have realized its significance.
- Nepal government and JICA Nepal as a joint will give completence to this project.
- He requested to provide any suggestions or queries directly to the division office or ERMSO or DWSS.

B) Main Points from the Senior Divisional engineer of DWSS, Deepak Puri

- 1st Liaison conference was only held between 3 WUSCs which are Mangadh, Gauradaha and Dhulabari. And then 2nd Liaison conference was held between 6 WUSCs and now it has been extended to 17 WUSCs.
- The main objective of this Liaison conference are to exchange the lessons learnt by 3 WUSCs to other WUSCs and share their problems, mitigation, measures as well.
- He expressed his idea to make this liaison conference even more effective.
- He also added that DWSS will conduct OJT program in other WUSCs of Morang district by next week with the support of JICA.

C) Presentation given by Mr. Rajesh Ghimire, CHRDU Chief

On

Dissemination of the evaluation report of WUSCs

Different Questionnaires were prepared and distributed for the officers and the employees of the users committee. Eventually, we found that the knowledge of the officers and employees were satisfactory.

The evaluation was done based on the four categories:

1. Knowledge
2. Skill
3. Attitude
4. Overall management

Results on Evaluation of knowledge:

Found that adequate knowledge were received on:

1.Treatment method
2. Drinking water quality
3. Management skill
4. Drinking water system
5. Tariff structure
6. Tools, fittings, meter valve

Following knowledge should be improved on

1. New technology like UV, RO
2. High level drinking water standard
3. Financial management
4. Awareness

Results of Evaluation on the skill

Evaluation was done with the work done previously by the technical employees. And it was seen that the level of skill of technical employees of the users committee was good.

Result of the evaluation of skill

1. Leakage was seen in some valves.
2. Insanitary condition was seen around valve box.
3. Algae should be immediately removed from the slow sand filter.
4. Proper drainage system should be arranged for managing the waste water of wash out.
5. Servicing of the generator should be done periodically.
6. Remarkably, filters were cleaned regularly and valves were opened and closed timely.

Record keeping were seen good in following situation:

1. Regarding Valve
2. Tariff
3. Complaint

4. Pumps
5. Water quality standard
6. Minutes of meeting
7. Meter reading
8. Maintenance
9. Filter operation

Following skills should be improved on:

1. Electro-mechanical
2. Leakage detection
3. Computer accounting
4. Fund generation and investment
5. Network establishment
6. Business promotion

Evaluation of an attitude:

The evaluation and discussion with officers and employees of the users committee was done separately. The attitude of the officers and employees were seen satisfactory.

Result of the evaluation of an attitude

The attitude was seen satisfactory on the following things:

1. Eager to learn new things.
2. Good behavior towards consumers.
3. Willingness to improve on work.
4. No hesitation in learning new things from each other.
5. Using new concept and design in the system.
6. Participative problem solving and decision making attitude.

Overall evaluation:

1. The tariff collection level was good.
2. Special attention should be given towards other essential parameters of drinking water quality.
3. High coverage of water service.
4. Minimum leakage.
5. Satisfactory financial management.
6. Special attention should be given towards financial investment for uploringing new thoughts.
7. ODF plan should be taken as the appropriate point towards the sanitation.

D) Presentation on the outcome of the project.

i) Indra Pd. Budathoki, secretary at Dhulabari

- With the help of JICA, Division office and DWSS, we are following the track of improvement.

- They are helping us to show the path of progress.
- Through the OJT and the training provided by JICA experts, our employees have become more skillful.
- Submersible pump which was not functioning for almost 2 to3 years is now functioning with technical support from JICA staffs.
- JICA investment in both managerial and technical sector is found satisfactory.
- Further support from JICA, DWSS and Nepal Government through such types of programs is expected in future.
- And he also ensured to share all the experience with other WUSCs in the upcoming days for the betterment and progress.

ii) Govinda Bd. Khadka, Chairman at Gaumdaha

- The OJT and Trainings provided by JICA are very much useful.
- Such types of programs are expected in future, so that we can smoothly move into the path of progress.
- They are encouraging us to prepare the business plan for our betterment and we have prepared it and presented at Dhulabari.
- He also added that they are able to improve because of the support of JICA experts and now they on the path of progress.
- In this year 2012, we have the targeted to connect 150 additional taps.
- If WUSCs provide training and share their experience and achievements with the other WUSCs then it will be more effective.

iii) Ram Ghimire, Chairman at Mangadh

- This is the 3rd Liaison conference, I attended.
- This Liaison is expanding as well. In previous conferences, only 3 WUSC participated. Today there are 17 more WUSCs.
- With the help of JICA project, filter plant was connected.
- Many skills and trainings were taught by the JICA experts which was very fruitful.
- Before the JICA intervention in this project, people used to refuse for the tap connection. We were not able to receive their trust. But after that the JICA intervention, our water quality were tested. We followed up the water quality standard and ensure that the water quality is good. Now, the number of consumer for the tap connection has increased quickly.
- Although it was designed for 11 thousand people, it is now doubled and serving 23 thousand people at present. We have improved our capacity to operate for the projects.

- The equipments which has been provided by the JICA has helped us a lot the smooth operation of the project.

E) Group formation and discussion

Group "A"

Presentation by Dhulabari and others

a) Managerial Improvement
   - There should be interaction programs and site visit programs between WUSCs at district level and regional level for the capacity development of the WUSCs.
   - Preparing periodic work plan
   - To provide trainings for the staffs related to the office management. (Computer, Accounting, water Tariff)
   - To conduct public awareness trainings.

   (Situation of the project, importance of water supply and sanitation and environment)

b) Technical Improvement
   - Refreshment training for the technicians are necessary.
   - To maintain the present situation of the project, skilled technician should be hired by the group of WUSCs since single WUSC could not afford an engineer.
   - There should be management of water quality testing lab in a same district for testing the water quality of all water supply facilities at the same district.

Group "B"

Presentation by Gauradaha and others

A. Problems facing by the WUSCs
   - Problem of water quality as they are not being able to provide safe water.
   - Low water pressure
   - Difficulty in collecting tariff from the consumers.
   - Since source of stream, it is not so safe.
   - No trainings for the technicians and committee members.
   - Lack of public Awareness.
   - Problem of Load shedding (Power cut off)
   - Since the distribution pipeline are very old, there is problem of clossing due to deposition of sand, iron and rust.
   - Choking in pressure filter.

B. How to improve
   - Trainings related to electro mechanical should be provided.
   - There should be tree plantation around the intake area.
   - Discussion with WUSC regarding raising the water tariff.

- Government should provide some privilege for the continuous supply of electricity.

Group "C"

iii) Presentation by Mangadh and others:

a) Managerial problems:

- No coordination between the Committee and the Consumer
- No good knowledge in the consumers regarding pure and safe drinking water
- Political interference.
- Lack of knowledge and skill regarding accounting system.
- Lack of business skill and knowledge.
- No capacity of constructing long lasting facility.

b) Policy related

- No facility in electricity tariff.
- No management of discount while purchasing materials. (Materials are too expensive)
- No measure in the possibility study.
- No attention regarding subsidy from central government on the basis necessity.
- There is a problem in providing drinking water facility to the ultra poor people.
- Deficiency of drinking water materials like valve chamber, fittings, meter, etc.
- No participation of consumer committee on policy making system.
- No monitoring and support from the central unit.
- Government only gives priority in constructing the projects but not on post operation.
- Non technical employee.
- Knowledge of water quality.
- Lack of knowledge on record keeping.
- Lack of modern technology and knowledge

C) Suggestions

- Trainings as well as refreshments trainings for staffs and committee members.
- Should create environment to committee to participate in policy making programs.
- The government should accept water supply as fundamental right and should give subsidy on electricity tariff.
- There should be provision of mechanical and technical support.
- Management of training programs along with practical tools and equipments.

F) Comments by Jhapa divisional chief, Mr. Jagganath Purbey

- Started speech by thanking all the participants.
- He told that such kind of meetings and discussions help WUSCs for their better management.
- He admired their idea of hiring a common engineer by few WUSCs.
- He also agreed on the point raised by the WUSCs that their work should be monitored by the central levels so that they can receive regular advices.
- He also praised about their presentation in last workshop regarding business plan and he felt that such kind of group discussions is beneficial.
- He shared the fact that he is receiving comperatively less complaints from Dhulabari and Gauradaha. Because of capacity development programs, they are able to solve their problems on their own which is remarkable operation of the project.
- He suggested WUSCs for regular maintenance as it ensure the sustainability of the project.
- And lastly, he also suggested that exposure visits to neighbor projects can help community to explore new ideas.

G) Norihisa Taoka, JICA Team Leader

- This liaison conference has two functions. One is to review the monitoring and evaluation results from 3 WUSC and other is to exchange the information. And by exchanging information, they can share issues, challenges and find out the solutions as well.
- And for the 1st function Mr. Ghimire, the chief of CHRDU presented the evaluation of results and mentioned that the result the team found was satisfactory. This can be taken as an effect of the project activities.
- Further, he pointed out some challenges in management. Like example: leak detection, computerized billing and accounting and I realized that these are some of the future challenges.
- There is lack of mechanical and electro mechanical technician. So, we are planning to include OJT in this field.
- Regarding the information sharing and discussing in 3 groups, I could find each WUSC has a lot of problems, problems for conducting awareness program, Non revenue control and water quality control.
- Among others, I could understand the common problem is lack of human resource.
- We are conducting workshop on introducing management plan to all WUSCs on the next day.
- Water supply management model means the water utility concept who is implementing very good water supply management and these 3 WUSCs are now implementing the Water supply management model. This means 3 WUSCs are sort of model.

- These methods and procedures will be disseminated to other WUSCs who are participating here. By introducing this kind of model in other WUSCs, they will also be improving their capacity.

H) Closing remarks by Deepak Puri, Senior divisional engineer at DWSS

- Problems are arising more in other WUSCs than that of 3 WUSC. Since the capacity development program will be held in other districts, it will be sort out to some extent.
- The main problem is related with electro mechanical. This is not only the problem of this place but also the problem of the whole country.
- And the department is very serious about the electro mechanical and accounting problem as well.
- Even the CHRDU is very serious regarding this fact and with the coordination of CHRDU and the JICA team, Master trainer will be formed in near future.
- Post-Monitoring work will also be conducted by department after project handover.
- He also stated that DWSS are keeping the concept of SOP for the regular repair maintenance with support of JICA.
- The question is also rising whether we should go for the utility concept or not.
- He emphasized that the department is very concerned about Electro mechanic.

WUSC III LIAISION CONFERENCE

PARTICIPANTS ATTENDANCE (1/2) Date: 9th Feb, 2012

NAME	ORGANIZATION	POSITION	SIGNATURE
Deepak Puri	DWSS	SDE	[signature]
Rajeeb Ghimire	"	SDE, CHRDU	[signature]
Rinku Shrestha	"	Engineer.	[signature]
Shyam Pd. Updhaya	WSSDO, Morang	Division chief	[signature]
Jagan Nath Purbey	", Jhapa	" "	[signature]
~~Anoj Updhaya~~	~~", Morang~~	~~Engineer.~~	
Norihisa Taoka	NJS Consultant	Team Leader (JICA Expert)	[signature]
Sataru Oniki	NJS Consultant	JICA Expert.	[signature]
Ram Bdr. Ghimire	Mangadh WSUC	Chairperson	[signature]
Durga Chapagain	" "	Co. Secretary	[signature]
Gopal prasad Neupane	Jhumkatwsuc	Member	[signature]
Gobinda B Khadka	Gauradha	Chairman	[signature]
Amber Bahadur	Chandragadi	chairman	[signature]
Lok B. Subedi	Letang WUSC	Sub. chairman	[signature]
prem pd sivakoti	WUSC, Gauradaha	operator	[signature]
Thamber Khatri	Pathri WUSC	Member	[signature]
Bhoj Kumar	Ghimire Lakhanpur	Chairman	[signature]
Bhupal Jimee	U.S. Raboni	Chairman	[signature]
Pashupati Raj Gautam	Damak W.S.	Chairman	[signature]
Govinda B.B	Salakpur	Vice Chairman	[signature]
Anoj upadhayay	WSSDO, Morang	Engineer	[signature]
Bir Bahadur Khulal	Haraicha WUSC	Chairman	[signature]
Chakra Gurung	Topgachhi	Secretary	[signature]

WUSC II LIAISION CONFERENCE

(2/2)

PARTICIPANTS ATTENDANCE

Date: 9th Feb, 201?

NAME	ORGANIZATION	POSITION	SIGNATURE
Babu Kaji Shrestha	WSSDO Jhapa	Ex.	[signature]
Janka bhatarai	Dhulabari, WUSC	Vice president	[signature]
[illegible]	[illegible]	[illegible]	[signature]
Bineeta Shahi	JICA project	Secretary	[signature]
Roshan Suwal.	JICA Project	Technical Interpreter.	[signature]
Lokendra Limbu	Topgachhi-3	President.	[signature]
Meniya Khadgi	JICA Project	Secretary	[signature]

Appendix-2

- Presentation Materials of the Expert -

Analysis Methods and Principals

August 15, 2011, IZAWA Tetsuo

Topics of This Seminar

- Analysis method of pH, Turbidity, Color, Free Residual Chlorine, M-alkalinity, Total Iron, Arsenic, etc.
- Analysis principals of AAS, absorption photometry, and turbidity meter.
- Meaning of coefficient variation and standard deviation,
- Others

Analysis method in laboratory and at site

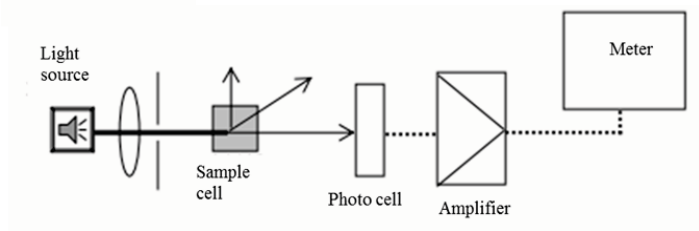
Parameter	In laboratory	At site
pH	• By pH meter	• pH meter • Colorimetric method
Turbidity	• By turbidity meter	• By comparison with standard solution with eyes
Color	• By spectrophotometer	• By comparison with standard solution with eyes
M-alkalinity	• By titration with acid	• By titration, simple method
Free residual chlorine	• By comparison with standard solution with eyes • Digital chlorine meter	• By comparison with standard solution with eyes
Total iron	• By spectrophotometer • By AAS • By ICP	• Simple analysis kit
Arsenic	• By spectrophotometer • By AAS after pre-treatment • By ICP after pre-treatment	• Simple analysis kit

Turbidity meter-1

To measure the degree of turbidity, there is a variety of styles turbidity meter.

1. Transmitted light measurement

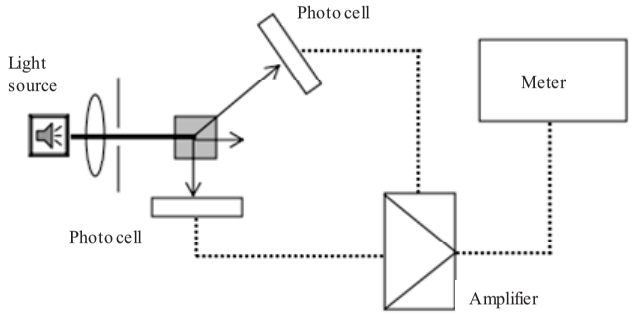
- With the higher turbidity, the light transmission reduces.
- 660 nm wave length



Turbidity meter-2

2. Scattered (reflected) light measurement

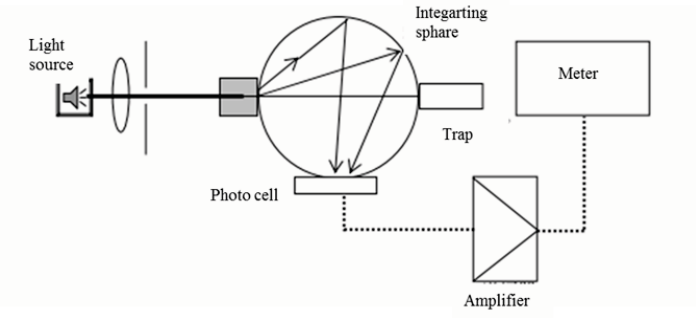
- With the higher turbidity, the light scattering increasing.
- 660 nm



Turbidity meter-3

3. Transmitted -integrated sphere scattering light calculation method

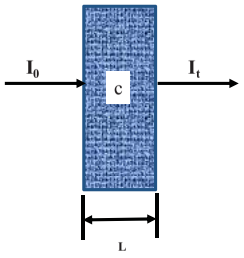
- This method enables more accurate measurement of turbidity by measuring both the scattered light and transmitted light and using the proportionality of the concentration of suspended matter and the ratio of the two methods.



Absorption photometry-1

1. Principal:

- The concentration of the target element in the solution is determined by measuring the absorbance by adding the appropriate color reagent in the solution.



$I_t = I0 \times 10^{-.cL}$

Where

.: Absorptivity, Constant by light-absorbing material, wavelength, etc.

Molar absorption coefficient: at .= 10mm, c=1mol/

Transmittance.I_t/I^0= t

Transmittance.= t x 100

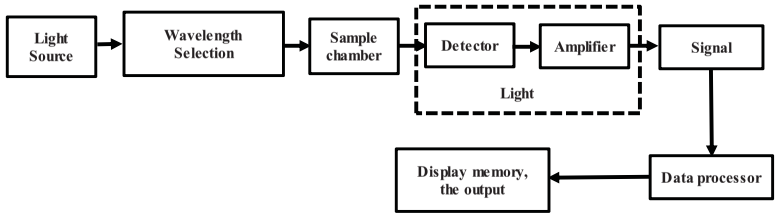
Absorbance $E=\log(1/t) = \log I_0/I_t$

E =.cL

The Absorbance is proportional to the concentration if the thickness of the solution (L) is constant

Absorption photometry-2

2. Composition of spectrophotometer (Type of the one where spectrum is irradiated to the sample.



Absorption photometry-3

3. Light source

①Tungsten and halogen lamps：Continuous spectrum with wavelength range of more than 320mm (visible to near infrared)

②Deuterium Lamp：Continuous spectrum with wavelength range of 160 – 400 nm (UV-Visible)

③Low-pressure mercury lamp：Light source with wavelength of many emission lines of 253.65mm ~ 579.07mm is used

④Others: Xenon lamp, LED high-brightness laser are used.

Absorption photometry-4

- There are two types of spectrophotometer, single beam with single sample chamber and double beam spectrometer with two sample chambers to automatically compensate the measurement result of blank sample.
- Double beam system is used in self-recording spectrophotometer with the characteristics.
- The magnetic spectrometer, which employs a double beam system is characterized of small changes in external factors during the measurement.
- In addition, the spectrophotometers with double wave length spectrophotometry or derivative spectrophotometry are in market..

Absorption photometry-5

■Attentions to be paid to in Analysis

(1)To add chemicals such as acid, alkali, buffer solution, masking agents, by following the analysis procedure

(2)Attention to leaving time and temperature

(3)Solvent extraction in some cases

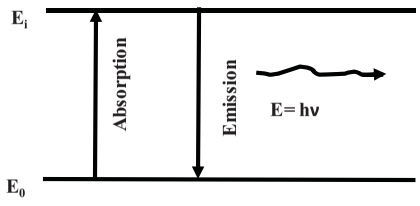
(4)To obey the designated wavelength

(5) To use standard addition method or internal standard method instead of absolute calibration curve in cases of hard measurement by absolute calibration method.

Atomic Absorption Spectrometry-1

1. **Principal**.

- The atomic vapor of an element is in a variety of Energy in the state, depending on the circumstances of its existence, but when it is called to be at the lowest energy state, it is called in the ground state E_0）.
- The atomic in the ground state transitions to the excited states, higher energy state such as E1, E2, etc. by absorbing the energy of when added in the form of energy such as heat, light, etc.
- Atomic absorption spectrometry is used this phenomenon.



Atomic Absorption Spectrometry-2

- On the other hand, the excited state is short-lived because it is unstable and the atomic return to its original ground state in a short time.
- The extra energy for the atom to return to the ground energy state is released as light. Emission spectrometry is used to this phenomenon. That is, light absorption and emission is related to the two sides.
- When the atom of which sate is at the excited state E_1 returns to the ground state E_0 by releasing the light energy, there is a following formula.

- $E=E_1-E_0=h\nu=hc/\lambda$

  Where,

  h: Planck's constant=(6.620×10^{-34} J·s)

  ν: Frequency

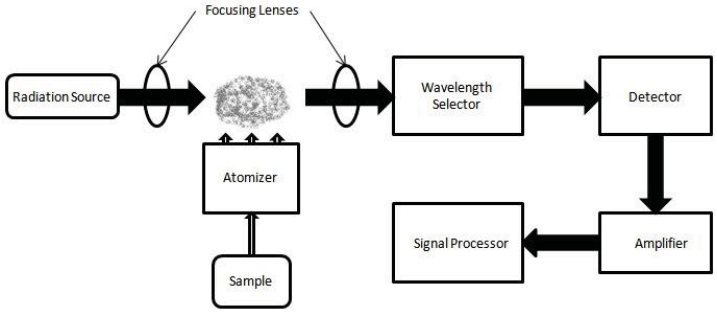
  c: Speed □□of light at vacuum (=2.99979×10^8 m/s)

  λ: Wavelength

Atomic Absorption Spectrometry-3

- Since the energy level of an element is constant, specific element can absorb its specific wavelength of light.
- To use the resonance line, the analytical line which is corresponding to the minimum energy transfer; i.e, E_1-E_0 is the principal in atomic absorption spectrometry.
- The atom density at ground-state is proportional to the concentration of analytes in the sample under a certain condition.
- And there is a relation between the absorbance and the atom density, similar to Lambert - Beer's law in absorption spectroscopy.
- Accordingly, we can know the concentration of analytes in a sample from the calibration curve by measuring the absorbance.

Atomic Absorption Spectrometry-4



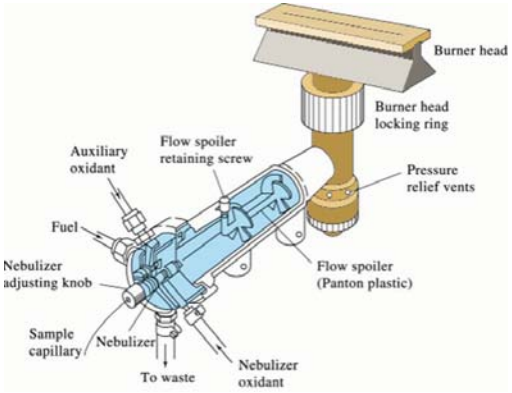
Atomic absorption spectrometer block diagram

Atomic Absorption Spectrometry-5

2. Atomizers:

(1)Flame atomizers with gas

◆The air-acetylene flame with a temperature of about 2300 ˚C and the nitrous oxide (N_2O)-acetylene flame with a temperature of about 2700 ˚C.



Premix Burner

Atomic Absorption Spectrometry-6

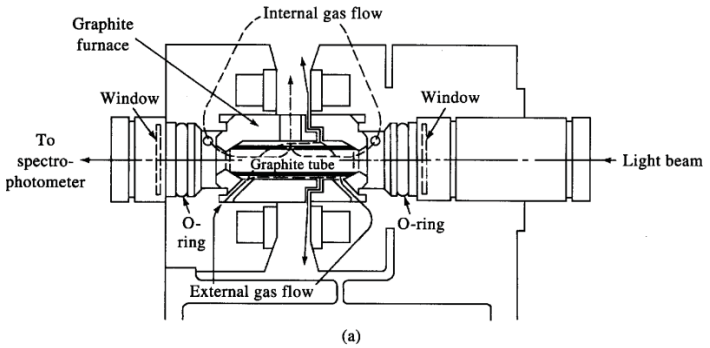
The processes in a flame include the following stages:

- Dissolvation (drying) – the solvent is evaporated and the dry sample nano-particles remain;
- Vaporization (transfer to the gaseous phase) – the solid particles are converted into gaseous molecules;
- Atomization – the molecules are dissociated into free atoms;
- Ionization – depending on the ionization potential of the analyte atoms and the energy available in a particular flame, atoms might be in part converted to gaseous ions.

Atomic Absorption Spectrometry-7

2. Atomizers

(2) Electrothermal atomizers



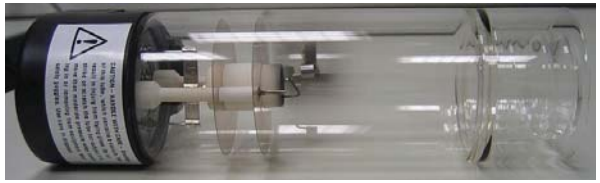
Graphite furnace

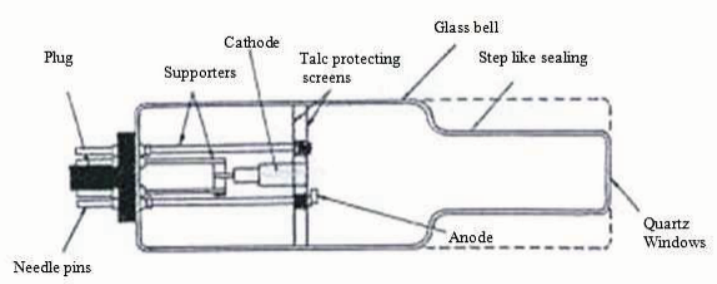
Atomic Absorption Spectrometry-8

- This method is more sensitive, especially for the elements which easily form un-degradable oxides such as aluminum, chromium, vanadium, etc.
- However, since co-existing elements highly impacts, background correction system are always used and standard addition method is to be used, when necessary.
- In addition, for the determination of concentration of cadmium and lead, palladium nitrate as the matrix-modifier (inhibitor interference which is a substance that forms a more stable compound with the coexisting substances.
- For examples, in case of forming un- degradable compound with co-existing substances such as sulfuric acid, phosphate, silicate and so on, lanthanum, strontium, calcium, etc. are added as inhibitor interference) is used in order to suppress the loss component in the process of incineration.

Atomic Absorption Spectrometry-9

3. Radiation sources: Hollow cathode lamp





Atomic Absorption Spectrometry-10

4. Background absorption and background correction

■Deuterium (D_2 lamp) background correction for flame AAS

■Zeeman-effect background correction for electrical heating AAS

Atomic Absorption Spectrometry-11

5. Interferences for flame AAS

(1) Spectroscopic interference

1)Analytical line cannot completely be separate from the other adjacent line: which results in a narrow liner range of calibration curve; Use other analytical lines.

2)Analytical line is absorbed by the substances other than analytes of atomic vapor generated in the frame: Correct by background correction or separate the analytes by solvent extraction..

(2) Physical interference

■The higher viscosity of the sample solution causes the reduction of spray efficiency to the burner and results in the lower the absorbance.

■In this case, dilute the sample as much as possible.

Atomic Absorption Spectrometry-12

(3) Chemical interference

1)When the atom is ionized in the frame. This phenomena will happen in measuring the atoms which has the tendency of easily ionization with low ionization voltage such as alkali metal or alkaline earth metal. Add these elements with lower ionization voltage. For example, add potassium and cesium for measuring soda and potassium, respectively.

2)In case of fewer atoms in the ground state of the analytes due to producing hardly biodegradable compound by reaction with coexisting substance, high-impact material coexistence of anions are considered, in general.

To avoid this interference, the following methods shall be tried.

Atomic Absorption Spectrometry-13

① Separation by solvent extraction of the target element

② Add interference suppression

③ Use a hot flame: acetylene – di-nitrogen oxide frame

④ Add excess of the coexisting materials: interference by coexisting substances becomes constant with over a certain amount. Measure by adding over a certain amount of coexisting substance to the sample and standard solutions and make the calibration curve. Sensitivity is reduced.

⑤ Use standard addition method

CV and S_N

1. CV: Coefficient variation

■The coefficient of variation **(CV)** is defined as the ratio of the standard deviation to the mean :

$$c_v = \frac{\sigma}{|\mu|}$$

2. SN: Standard deviation

■It shows how much variation or "dispersion" there is from the average (mean, or expected value).

■An estimator for . sometimes used is the **standard deviation of the sample**, denoted by s_N

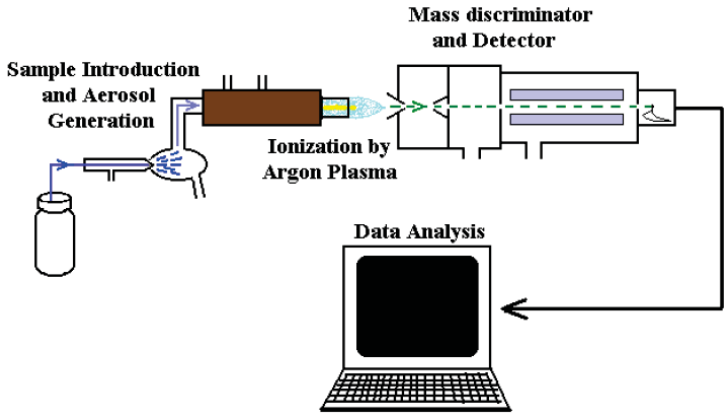
$$s_N = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \overline{x})^2}.$$

Let's calculate CV and S_N

- Consider a population consisting of the following eight values:

$$2,\ 4,\ 4,\ 4,\ 5,\ 5,\ 7,\ 9$$

- The mean (average) : 5
- The standard deviation: 2
- CV = 40 %



Schematic flow of ICP-MS by Jenna Worley and Steve Kvech

Thank you for your attention.

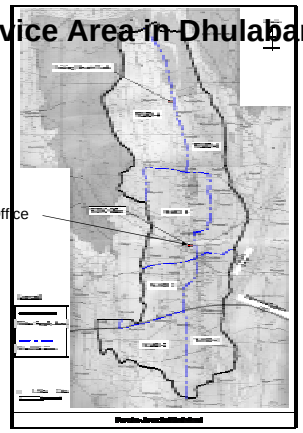
ANNEX 7-2-5

Transmission & Distribution Pipelines in Dhulabari

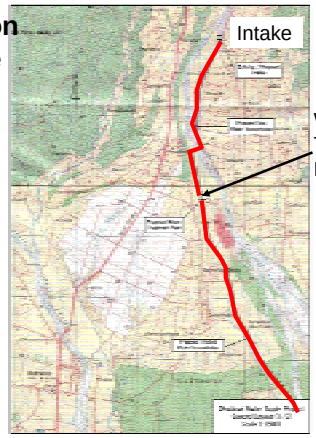
May 4, 2010

JICA Expert
Satoru ONIKI

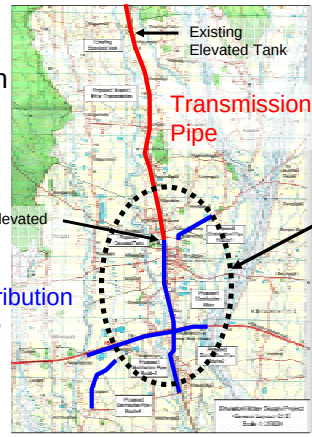
Service Area in Dhulabari



Transmission Pipe Route



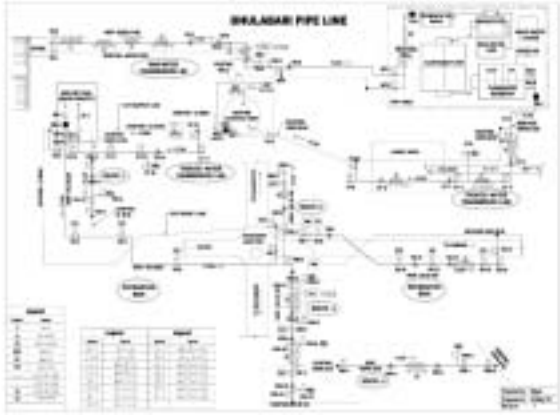
Transmission Distribution Pipelines



Flow Diagrams

The aim is to make

- ✓ The operation simple and
- ✓ Less in maintenance work and
- ✓ Supply safe and
- ✓ Continuous potable water to the people of Dhulabari.



Water Pipeline Information

- Pipe Networks
- Location of Valves, Air valves, Washouts and Fire Hydrants
- Pipe Material (HDPE, CI, GI)
- Pipe Diameter
- Flow direction
- Flow meter

Legend (Sample)

Symbol	Details
	Valve
	Air valve
	Fire Hydrant
	Washout
MH	Manhole
VR5-6	Valve Nos. (route Nos.+Nos.)
	New pipe line
	Existing pipe line
	River crossing

Available for What?

- Control and Maintenance
  Keep good water quality and pipe condition
  → Air valve
  Stop providing water → Valve
  Replace and clean a pipe → Valve, Washout
  Change a flow direction → Valve
- Repair
  → Location, pipe material, pipe size
- Fire
  → Location of Fire Hydrant

Water Facility Condition

- Reduce water supply ?
- Deterioration of water quality?
- No providing water in some areas?
- Extension of pipes
  → Water demand (Pipe Dia. Determination)
  Water Supply Plan
  → Connect to existing pipe
  → Pipe material
- Out of Order?

Roles of each facility for pipes 1

Intake:
Intake collects surface (spring) water through perforated PVC pipe.

Raw water transmission pipe:
Raw water collected at intake is transmitted to the Water Treatment plant
Method of raw water transmission is gravity flow and/or pumping flow.
In Dhulabari, the transmission system is gravity flow.

Transmission pipe:
The facility which conveys from water treatment plant to service reservoir (elevated tank).

Roles of each facility for pipes 2

Distribution pipe:
Cancellous pipe network to convey treated water to house connection

Valve:
Valves which are gate and butterfly valves control flow of water at different pipelines

Air valve:
Release trapped air from inside pipe. On the other hand, air valve has function to suction air under construction.
The valves located at higher elevations on pipe lines

Roles of each facility for pipes 3

Washout:

Washout drains are provided to keep the pipelines free from blockade. For keeping the pipe inside clean, sediment, deteriorated water shall be washed periodically.

At least every 3 months in dry season and once a month in rainy season

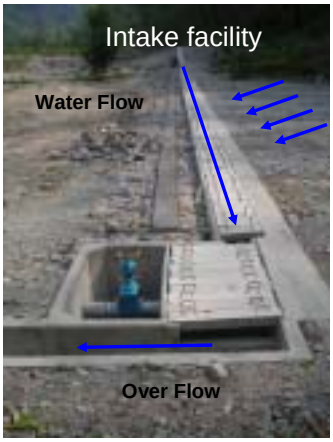
Fire Hydrant:

Fire hydrants can be used in case of fire.

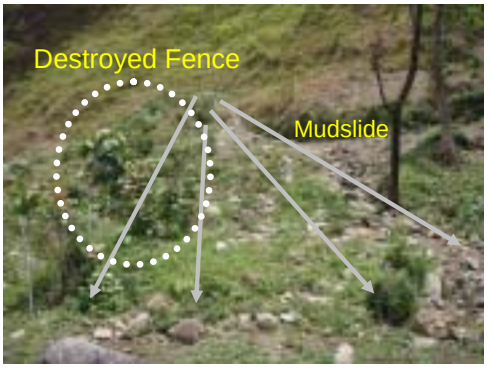
Survey Staff

Date;
April 19-20, 2010
Staff;
WUSC Eng.
Targets;

- Intake
- Raw Water Transmission Pipe
- Transmission Pipe



Catchment Area in Intake



Intake Cannel

Exposed Raw water Transmission

- Exposed the pipe by floods, rain.
- Need to be covered
- Need the support below the pipe

Cut the Transmission

- Raw waster transmission pipe is 2 lines
- One was cut, the other is OK.
- Need to reconnect before rainy season

New Transmission Pipe

- Covered pipe by concrete

Exposed and Cut Raw water Transmission 2

- Exposed new pipe and cut existing pipe by floods

Washout and Valve on Transmission

Washout Point under the field
(drainage is bad.)
↓

↑
Washout and valve are located in a rice field.

Valve Chamber

Missing cover
(VT-2)
↓

↑
Valve box cover
(VT-5)

Air valve Chamber

Inside chamber
↓

↑
Air valve box cover by concrete (VR-9)

Air valve Chamber

No cover (VT-7)

↓

↑

No cover (VT-3)

Leakage and Cleaning

Rain water and waste in valve chamber

If pipe inside has negative pressure, waste water infiltrates in pipe.

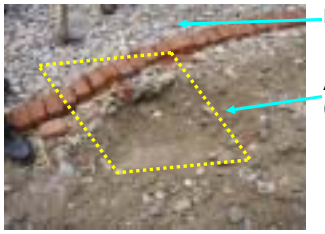
↓

↑

Leakage from washout valve

Need to fix and save water

Necessary to consistency with other project Case-1



Road under construction

Air valve chamber (VT-14)

- Road is constructed on existing air valve.
- WUSC should announce the road department to avoid the water facilities.
- It is important to maintain and supervise water facilities.

Necessary to consistency with other project Case-2

Disconnected pipe

Is it cut when the cannel was constructed?

Survey Format

Inspector:

Date: April 19, 2010

No.	Symbol	Pipe Dia. Material	Condition (Looks)	Valve working	Leakage	Sound, Etc.	Valve status
Sample							
1	VR-3	OD160 HDPE	Bad, Rusty	Ok	No	No	Open
Other; Malfunction and Repair Records							

Recommendation 1

[Intake site]

- Need to repair a fence
- To Dredge and remove sand in cannel

[Raw water transmission]

- To set a support and protect the pipe
- To reconnect pipes (2 points)
- Extension washout drain pipe in rice field
- To protect the valves in rice field

Recommendation 2

[Transmission pipe]

- To put a cover of chamber

Tentative

Permanent

- To clean inside chamber

Recommendation 3

- Pipe network map is made up including existing and new pipes.
- Main water facilities which consist of valve, air valve, washout and fire hydrant are put on the network map.
- Periodical inspection for water facilities
- Record their conditions, malfunction and repair

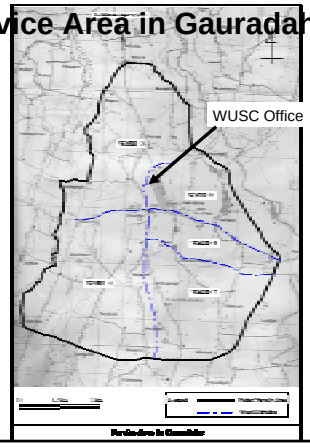
ANNEX 7-2-6

Transmission & Distribution Pipelines in Gauradaha

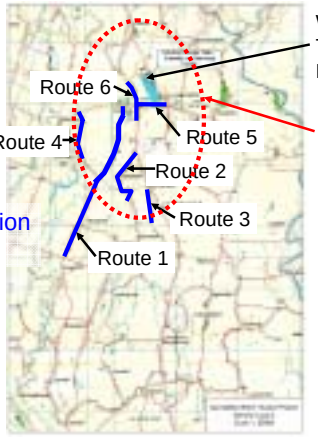
May 5, 2010

JICA Expert
Satoru ONIKI

Service Area in Gauradaha



Distribution Pipelines



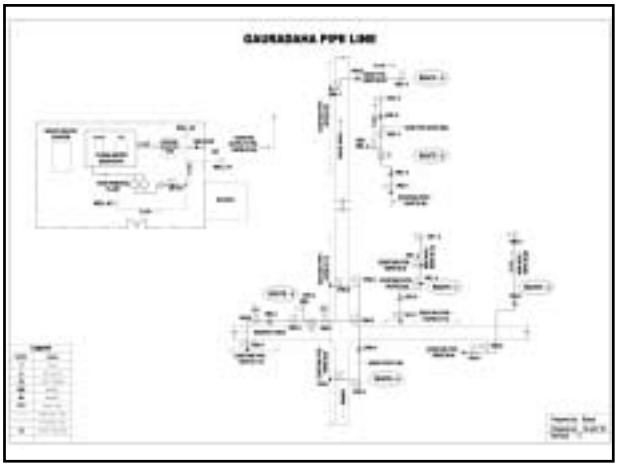
Distribution Network

- Pipe routes
- Valve location

✓ Pipe diameter?
✓ Pipe material?
✓ Valve?
✓ Air valve?
✓ Washout?

Flow Diagrams

The aim is to make
✓ The operation simple and
✓ Less in maintenance work and
✓ Supply safe and
✓ Continuous potable water to the people of Gauradaha.



Water Pipeline Information

- Pipe Networks
- Location of Valves, Air valves, Washouts and Fire Hydrants
- Pipe Material (HDPE, CI, GI, etc.)
- Pipe Diameter
- Flow direction
- Flow meter

Legend (Sample)

Symbol	Details
	Valve
	Air valve
FH	Fire Hydrant
WO	Washout
MH	Manhole
VR5-6	Valve Nos. (route Nos.+Nos.)
———	New pipe line
- - - - - -	Existing pipe line
	River crossing

Available for What?

- Control and Maintenance
  Keep good water quality and pipe condition
  → Air valve
  Stop providing water → Valve
  Replace and clean a pipe → Valve, Washout
  Change a flow direction → Valve
- Repair
  → Location, pipe material, pipe size
- Fire
  → Location of Fire Hydrant

Water Facility Condition

- Reduce water supply ?
- Deterioration of water quality?
- No providing water in some areas?
- Extension of pipes
  → Water demand (Pipe Dia. Determination)
  Water Supply Plan
  → Connect to existing pipe
  → Pipe material
- No water → Out of Order?

Roles of each facility for pipes 1

Intake:
Intake collects surface (spring) water through perforated PVC pipe.

Raw water transmission pipe:
Raw water collected at intake is transmitted to the Water Treatment plant
Method of raw water transmission is gravity flow and/or pumping flow.
In Dhulabari, the transmission system is gravity flow.

Transmission pipe:
The facility which conveys from water treatment plant to service reservoir (elevated tank).

Roles of each facility for pipes 1

Distribution pipe:
Cancellous pipe network to convey treated water to house connection

Valve:
Valves which are gate and butterfly valves control flow of water at different pipelines

Air valve:
Release trapped air from inside pipe. On the other hand, air valve has function to suction air under construction.
The valves located at higher elevations on pipe lines

Roles of each facility for pipes 2

Washout:

Washout drains are provided to keep the pipelines free from blockade. For keeping the pipe inside clean, sediment, deteriorated water shall be washed periodically.

At least every 3 months in dry season and once a month in rainy season

Fire Hydrant:

Fire hydrants can be used in case of fire.

Survey Staff

Date;
April 21-22, 2010

Staff;
WUSC Eng.

Targets;
Distribution Pipe

Air valve Chamber (VR1-2)

No leakage (Repaired)
(April 21st,2010)
↓

↑
Leakage from air valve
(March 31st,2010)

Valve Chamber (VR1-3)

↓Repaired (April 22nd)

↑Obliquity (April 21st)

Valve Chamber (VR1-5)

Reinstalled chamber
(April 22nd)
↓

↑
Removed chamber to drain deteriorated water from pipe end.
(April 21st)

Valve Chamber (VR4-4)

Reinstalled chamber
(April 22nd)
↓

↑
Removed chamber to drain deteriorated water from pipe end.
(April 21st)

Necessary to consistency with other project Case-1

- Road is constructed on existing Fire Hydrant (VR5-6).
- WUSC should announce the road department to avoid the water facilities.
- It is important to maintain and supervise water facilities.

Necessary to consistency Case-2

- Entrance road is constructed on existing Air valve chamber (VR6-4).
- It is important to maintain and supervise water facilities.

Leakage from Air valve

Leakage from air valve
Need to fix and keep function and save water

Air Valve Cover Maintenance

It is not easy to open a cover.
Need to open and maintain valve/chamber periodically

Valve Chamber (VR6-1)

Survey Format

Inspector:

Date: April 21, 2010

No.	Symbol	Pipe Dia. Material	Condition (Looks)	Valve working	Leakage	Sound, Etc.	Valve status
Sample							
1	VR5-4	OD160 HDPE	Need to clean, Rusty	Ok	No	No	Open
Other; Malfunction and Repair Records							

Recommendation

- Pipe network map is made up including existing and new pipes.
- Main water facilities which consist of valve, air valve, washout and fire hydrant are put on the network map.
- Periodical inspection for water facilities
- Record their conditions, malfunction and repair

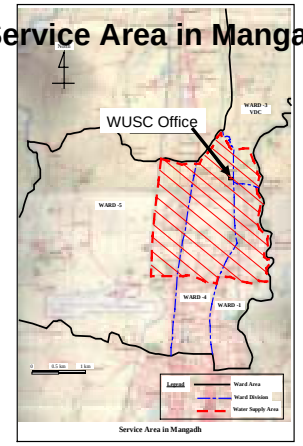
ANNEX 7-2-7

Transmission & Distribution Pipelines in Mangadh

May 5, 2010

JICA Expert
Satoru ONIKI

Service Area in Mangadh



Distribution Network

- Pipe routes
- Valve location

✓ Pipe diameter?
✓ Pipe material?
✓ Valve?
✓ Air valve?
✓ Washout?

Flow Diagrams

The aim is to make
✓ The operation simple and
✓ Less in maintenance work and
✓ Supply safe and
✓ Continuous potable water to the people of Mangadh.

Water Pipeline Information

- Pipe Networks
- Location of Valves, Air valves, Washouts and Fire Hydrants
- Pipe Material (HDPE, CI, GI, etc.)
- Pipe Diameter
- Flow direction
- Flow meter

Legend (Sample)

Symbol	Details
⋈	Valve
A	Air valve
FH	Fire Hydrant
WO	Washout
MH	Manhole
VR5-6	Valve Nos. (route Nos.+Nos.)
———	New pipe line
- - - - - -	Existing pipe line
10	River crossing

Available for What?

- Control and Maintenance
  Keep good water quality and pipe condition
  → Air valve
  Stop providing water → Valve
  Replace and clean a pipe → Valve, Washout
  Change a flow direction → Valve
- Repair
  → Location, pipe material, pipe size
- Fire
  → Location of Fire Hydrant

Water Facility Condition

- Reduce water supply ?
- Deterioration of water quality?
- No providing water in some areas?
- Extension of pipes
  → Water demand (Pipe Dia. Determination)
  Water Supply Plan
  → Connect to existing pipe
  → Pipe material
- No water → Out of Order?

Roles of each facility for pipes 1

Intake:
Intake collects surface (spring) water through perforated PVC pipe.

Raw water transmission pipe:
Raw water collected at intake is transmitted to the Water Treatment plant
Method of raw water transmission is gravity flow and/or pumping flow.
In Dhulabari, the transmission system is gravity flow.

Transmission pipe:
The facility which conveys from water treatment plant to service reservoir (elevated tank).

Roles of each facility for pipes 1

Distribution pipe:
Cancellous pipe network to convey treated water to house connection

Valve:
Valves which are gate and butterfly valves control flow of water at different pipelines

Air valve:
Release trapped air from inside pipe. On the other hand, air valve has function to suction air under construction.
The valves located at higher elevations on pipe lines

Roles of each facility for pipes 2

Washout:
Washout drains are provided to keep the pipelines free from blockade. For keeping the pipe inside clean, sediment, deteriorated water shall be washed periodically.
At least every 3 months in dry season and once a month in rainy season

Fire Hydrant:
Fire hydrants can be used in case of fire.

Survey Staff

Date;
April 21-22, 2010

Staff;
WUSC Eng.

Targets;
Distribution Pipe

Valve Chamber

↑
Water in chamber →

Valve

Leakage from valve
↓

↑
No bolt on valve

Air valve Chamber

Removed hook on cover
↓

↑
Inside air valve chamber
It took time to open the cover due to no hook.

Chamber Cover

Survey Format

Inspector:

Date: April 21, 2010

No.	Symbol	Pipe Dia. Material	Condition (Looks)	Valve working	Leakage	Sound, Etc.	Valve status
Sample							
1	VR5-4	OD160 HDPE	Need to clean, Rusty	Ok	No	No	Open
Other; Malfunction and Repair Records							

Recommendation

- Pipe network map is made up including existing and new pipes.
- Main water facilities which consist of valve, air valve, washout and fire hydrant are put on the network map.
- Periodical inspection for water facilities
- Record their conditions, malfunction and repair

Annual Report (2)

February 2011

Objectives:

- Guide for prepare annual report
- Understand process to make annual report

Agenda

1. Concept of annual report
2. Items contained in annual report
3. Case
4. Questions and answers
5. Discussion

1. Concept of annual report
2. Items contained in annual report
3. Case
4. Questions and answers
5. Discussion

1. Concept of annual report

(1) Objective of annual report

- Provide necessary information and data to major stakeholders to get their understanding and continuous support/assistance
- Provide information and data of accountability
- Report of performance to agency's strategic plan, budget papers, resources agreement and other strategic document *)

*) Strategy plan including short term and medium-long term business plan and project plans

1. Concept of annual report

1) Target reader

- Accountability: It may better focus or intend major stakeholders including as WUSC members and WSSDO for provide information about accountability
- Other purpose: If necessary, you may make different version of annual report for purpose or target stakeholders including NGO and donor agencies, or DO committee to change the focus points, for provide information of reliability or situation, rather than accountability

1. Concept of annual report

2) Quality of Data

- Fact base: Information should be factual, and including relevant information not just "good news"
- Easy to read and easy to understand

3) Timing

- Normally, many governments request to submit within 90 days after the end of fiscal year (e.g. 60 days in case of Japan and USA, 90 days in case of Australia, Canada and UK) *)

*) GOJ has mandatory standard format and style for business report but not has standard format and style for annual report, by the commercial law and regulation. Similar for USA and they have 10-K format and style for business report. Other country including South Africa and Russia has mandatory style and format for annual report.

2. Items contained in annual report

(1) Typical structure and items of annual report

1) Executive summary

- Provide overview of the report
- Refer noteworthy issues with relate to performance and other significant events during the report period.

2) Operational structure

- Structure of governance and structure of business operation

3) Performance

- Outputs or achievement to target (including financial performance and key performance indicators)
- Significant current and emerging issues that impact performance

2. Items contained in annual report

(1) Typical structure and items of annual report

4) Typical standard table of contents

Chapter 1: Introduction and overview

Chapter 2: Performance highlights

Chapter 3: Organizational Management

Chapter 4: Auditor's statement and related financial statement

Chapter 5: Functionally area service report

- You can modify the items and contents for objectives. This is just sample or your reference. Important thing is make sufficient report for objective.

2. Items contained in annual report

2. Items contained in annual report

Chapter 1: Introduction and overview

1) Preface by chairperson

2) Purpose of the WUSC, mission statement, vision

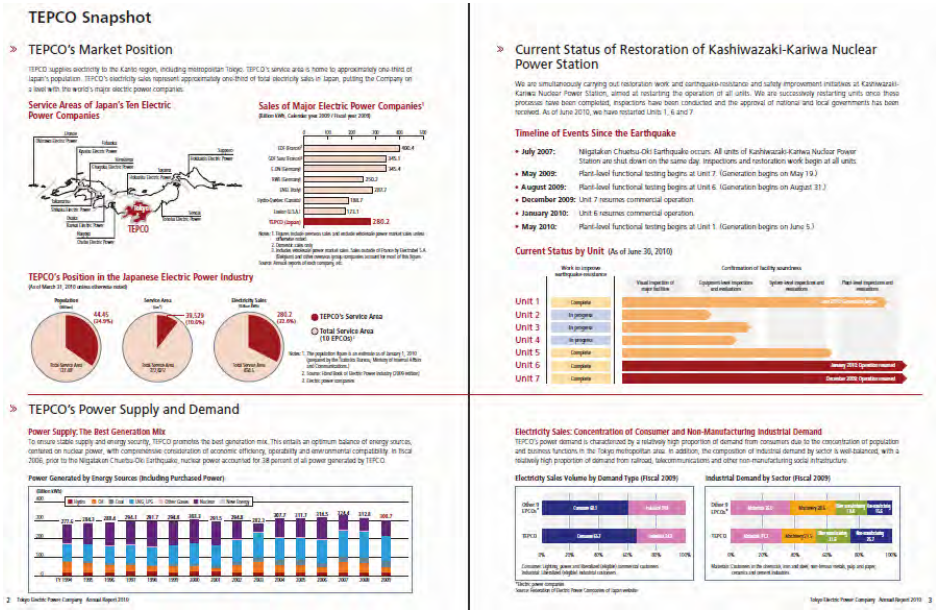
3) Overview, executive summary

- Preface may including or replace as executive summary, if it is convenient for small WUSC which human resources are limited
- Preface may also mentioned about purpose of the WUSC, mission and vision

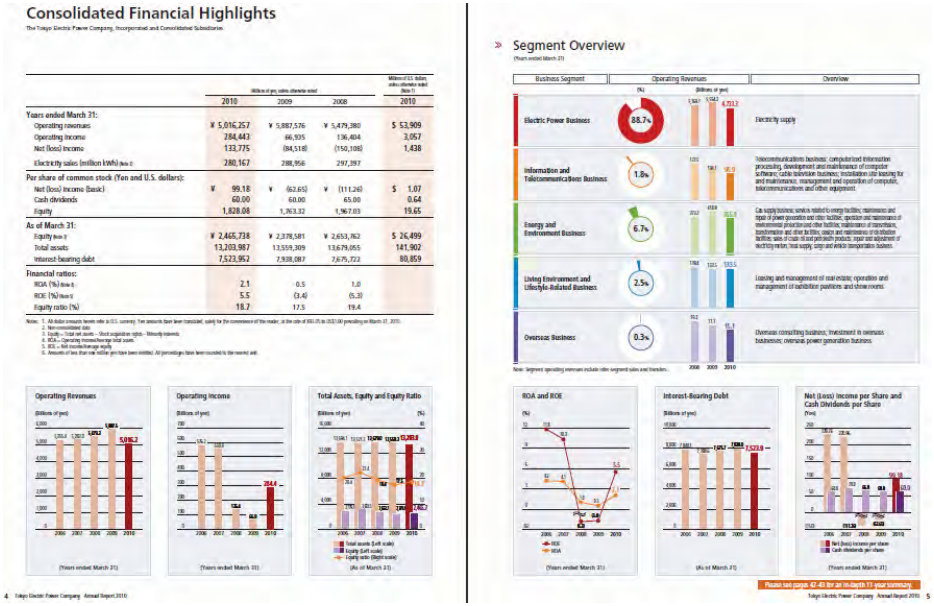
Sample of preface message, TEPCO: Tokyo Electric Power Company annual report 2010.

Although TEPCO is utility service company but not public company, nor non profit organization. In Japan, most utility services are provided by private sector. Same for TEPCO and their annual report target to their share holder and inform accountability to money shareholder invest to TEPCO.

Sample of executive summary (=snapshot), TEPCO annual report 2010 (continued)
In this part, TEPCO explain their business environment



Sample of executive summary (=snapshot), TEPCO annual report 2010 (continued from)
In this page, they explain financial highlights



2. Items contained in annual report

Chapter 2: Performance highlights

1) Membership

- Number of members, increases

2) Member services

- Number of connections, service coverage, population served
- Collection efficiency
- Complaints and solved
- New service or new business, if any

3) Financial performance

- Revenue and expenditure
- Financial assistance and progress of disbursement, if any

2. Items contained in annual report

4) Technical performance

- Intakes, production, distribution, NRW
- Total length of pipeline networks
- Leakage repair
- Technical assistance and progress of construction, if any
- New project and/or new facility, if any

Sample of performance highlight (=outlook), TEPCO annual report 2010 (continued)
In this page, TEPCO mentioned their medium-long term policy

Our Outlook

Our Operating Environment

Competition in the retail electricity market in Japan is intensifying with expectations of slower growth in electricity sales volume. However, TEPCO is promoting programs to generate sustainable growth and achieve a low-carbon society.

Forecast for Electricity Sales Volume for the Fiscal 2010 Supply Plan

Production levels fell sharply in the aftermath of the so-called Lehman Shock, which sharply reduced TEPCO's electricity sales volume, particularly among industrial customers. The economy is now recovering, but electricity sales volume for fiscal 2009 decreased year on year for the second consecutive year. Moreover, the recent intensifying competition with other energy resources, a plateau in population growth, lower economic growth, the advance of energy conservation, and expanding use of renewable energy have made the retail electricity market even more competitive.

Based on these conditions, the Fiscal 2010 Supply Plan projects moderate economic growth over the medium to long term. Given competition with other energy resources and the advance of energy conservation, however, from fiscal 2008 through fiscal 2019 we forecast a low compound annual growth rate of 1.0 percent for electricity sales volume and 0.5 percent for peak demand, both adjusted for the influence of temperature.

By category over the same time period, we forecast firm growth in regulated lighting demand at a compound annual growth rate of 1.3 percent, adjusted for the influence of temperature. Positive factors such as the spread of all-electric housing will offset negative factors including slow growth in the number of accounts, the advance of energy conservation, and expanding use of solar power generation.

In the liberalized segment (high voltage and extra-high voltage customers with contracts for 50 kW or higher), we forecast that commercial demand will increase at a comparatively solid compound annual rate of 1 to 2 percent due to projected moderate economic growth. On the other hand, we forecast that industrial demand will decrease at a compound annual rate of less than 1 percent because the shift to offshore manufacturing and slowdown in exports will result in flat production levels. Consequently, we forecast that overall demand in the liberalized segment will increase at a compound annual rate of about 1 percent.

In this market environment, including the impact of competition with power producers and suppliers (PPS), we forecast that our sales to customers in the liberalized segment over the same period will increase at a compound annual rate of 1.0 percent, adjusted for the influence of temperature.

We therefore forecast a compound annual growth rate of as low as 1.0 percent for total electricity sales volume over the period despite comparatively steady growth in the household and commercial sectors.

Policies for Medium-to-Long-Term Growth

While growth in our electricity sales volume is slowing, the public's expectations for the energy industry to contribute to a low-carbon society are on the rise. Under these conditions, TEPCO is increasing efficiency and reducing carbon emissions on the supply side and promoting wider use of electricity on the demand side to generate sustainable growth while contributing to the establishment of a low-carbon society. We also need to broaden the scope of operating activities in new business areas such as overseas business development.

At power plants, on the supply side, we are working not only to maintain stable supply but also to further increase operating efficiency and reduce carbon emissions, so that we can raise our competitiveness in terms of both cost structure and environmentally friendly technology.

On the demand side, we are actively promoting highly efficient appliances using heat pump and other technologies to expand electricity sales volume and reduce carbon emissions. We have already met some key goals of Management Vision 2010 such as expanding new electricity sales volume by 10 billion kWh from fiscal 2004 through 2010, a year ahead of the original plan. Moreover, we aim to further raise our shares in all energy consumption market sectors, from households and offices to commercial facilities and factories.

In our overseas business, we have expanded our business fields to power generation and consulting with the technology, skills and knowledge gained through our domestic power business. We are committed to overseas business development for future growth.

Forecast for Electric Power Demand

Electric Power Demand

Electric Power Demand (Percentage Change Compared with the Previous Fiscal Year)

Program to Achieve a Low-Carbon Society

Competitive Expansion of New Electricity Sales Volume

Sample of performance highlight, TEPCO annual report 2010 (continued)
In this page, TEPCO explain their capital investment plan

Our Investment

Capital Investment for Solid Future Growth

TEPCO works to enhance its facility soundness and further improve power supply efficiency with timely and adequate capital investment to promote carbon emission reduction and increase its cost and environmental competitiveness.

Capital Investment Required under the Fiscal 2010 Business Management Plan

Capital expenditures for fiscal 2004 were approximately one-third of the ¥1,680.0 billion spent in fiscal 1993 due to lower growth in power demand and our continued efforts such as efficient facility configuration and cost reduction.

Capital expenditures subsequently increased gradually, reaching ¥932.9 billion for fiscal 2009. In our current capital investment plan, we project that average annual capital expenditures for the next three years are going to increase ¥30 billion to approximately ¥780.0 billion compared with those in the previous capital investment plan. While a decrease in capital expenditures for supply facilities is expected owing to continued cost reduction, postponement of insignificant and minor constructions and revision of original construction plans, capital expenditures for generation facilities will increase mainly due to steady progress in new facility construction projects. Investment in generation facilities will continue to increase despite slower growth in power demand because improvement of facility soundness through timely and adequate capital investment is essential to further raising supply efficiency and reducing carbon emissions. Such capital investment will not only help create a low-carbon society but also enhance our cost and environmental competitiveness for our sustainable growth.

Enhancing Competitiveness through Capital Investment

To strengthen its competitiveness, TEPCO will continue to make capital investments in power generation facilities. Specifically, we will promote steady development of nuclear power generation; further research and development for higher efficiency in thermal power generation and wider use of renewable energy resources.

TEPCO emphasizes nuclear power for its primary power source because of its lower generation costs and zero-emission generation. Moreover, higher utilization of nuclear power facilities reduces our dependence on fossil fuels, so that we can mitigate risks associated with fuel procurement and price volatility. Consequently, nuclear power contributes to stabilizing electricity rates and improving energy security. Over the next 10 years, we plan to complete construction of Higashidori Nuclear Power Station Unit 1 and Fukushima Daiichi Nuclear Power Station Units 7 and 8, and to begin operations in turn from fiscal 2016. Fukushima Daiichi Unit 1, which has been in operation for 40 years, will continue to operate under a long-term maintenance and management policy based on technical assessments of aging nuclear power facilities. With the investment and efforts above, we currently plan to utilize nuclear power facilities to generate approximately 48 percent of total power in fiscal 2019.

Thermal power will remain an important power source for stable supply because it enables us to flexibly respond to power demand fluctuation. TEPCO has proceeded with planned long-term shutdown and termination of old and inefficient thermal plants and replaced them with highly efficient ones. As a result, our thermal efficiency for fiscal 2009 improved 0.8 percentage points year on year to 46.9 percent. Going forward, we plan to install 1,600°C-class more advanced combined cycle (MACC II) power generation systems with world-leading thermal efficiency of approximately 61 percent at Kawasaki Thermal Power Station unit 2-2 and Unit 2-3 and at Goi Thermal Power Station.

Concurrently, we will further raise efficiency through the planned long-term shutdown of some aging thermal power plants. In addition, from the perspectives of lower generation costs and stable fuel procurement, we are now moving ahead with the construction of the coal-fired Hitachinaka Thermal Power Station Unit 2 and Hirono Thermal Power Station Unit 6.

Moreover, we are planning large-scale photovoltaic (mega-solar) power plants, wind power plants and other facilities to expand renewable energy sources. The mega-solar power plants are slated for construction at Ukishima, Ohgishima and Komekurajima and are scheduled to begin operations in fiscal 2011. We also plan to construct our first wind farm, Higashi-Izu Wind Power Station, which is scheduled to begin operation in March 2012.

Power Generation Outlook by Energy Source

Capital Expenditures (Electric Power Business, Non-Consolidated)

Renewal Projects at Kawasaki and Goi Thermal Power Stations

TEPCO plans to introduce state-of-the-art LNG-fired thermal power generation facilities at two of our existing thermal power stations, Kawasaki and Goi. We plan to install 1,600°C-class MACC II thermal power generation systems with world-leading thermal efficiency of approximately 61 percent at Kawasaki Thermal Power Station Unit 2-2 and Unit 2-3 and Goi Thermal Power Station. For Goi Thermal Power Station, the new MACC II unit will improve thermal efficiency by 15 to 19 percentage points compared with that of an existing conventional unit at the station. Replacing an existing conventional LNG-fired plant with an equivalent MACC II unit will reduce annual LNG consumption by approximately 230 thousand tons* and annual CO2 emissions by approximately 620 thousand tons. Therefore, MACC II is expected to play a key role not only in improving TEPCO's thermal efficiency but also in reducing its carbon footprint.

*Assumptions: Output of 710 thousand kW (of both of MACC II and an existing conventional unit with a capacity utilization ratio of 80 percent

Sample of performance highlight, TEPCO annual report 2010 (continued)
In this page, TEPCO explains their operational performance

Fiscal 2009 Performance:
Electric Power Business

Operating Environment of TEPCO's Electric Power Business

During fiscal 2009, our electric power business was strongly affected by the global recession that followed the September 2008 collapse of Lehman Brothers.

Industrial demand, mainly from factories, was hit particularly hard. Large-scale industrial customer electricity sales volume, which accounts for the majority of industrial demand, continued to decrease more than 10 percent year on year until October 2009 following the largest ever year-on-year decrease, 22.0 percent, recorded in February 2009.

Even though monthly sales volume has increased over 10 percent year on year since February 2010, the current demand trend is still weaker than it was before the recession.

As a result, electricity sales volume to large-scale industrial customers in fiscal 2009 decreased 7.2 percent year on year. In particular, sales volume to the ferrous metals and machinery industries each decreased more than 10 percent in the same period.

Structure of Japan's Electric Power Business

Deregulation of Japan's electric power business has proceeded in stages to introduce the principles of competition for reduction in electricity rates and further improvement in customer service standards. All high-voltage and extra-high-voltage customers, accounting for approximately 60 percent of total sales volume in TEPCO's service area, are now within the scope of liberalization, while low-voltage customers including households and small stores and factories are still under regulation. As of March 31, 2010, approximately 8,450 customers with total contract power of about 3.3 million kW have switched their power supplier from TEPCO to new market entrants. The electricity sales volume to those customers totals approximately 3 percent of TEPCO's overall electricity sales volume.

After solid discussion from April 2007 to July 2008, METI's Electricity Industry Committee concluded that it will reexamine further deregulation toward full liberalization of the retail sector after a set period of around five years.

Liberalization of the Electric Power Market in Japan

The Electric Power Business Framework in Japan

Marketing and Sales Activities

While the operating environment in fiscal 2009 was challenging for our electric power business due to the ongoing recession, we attained a certain amount of success through our marketing and sales efforts.

The cumulative expansion of our electricity sales volume in the household and the corporate and large-scale sectors since fiscal 2004 reached 11.3 billion kWh. TEPCO has successfully achieved its cumulative sales expansion target of 10 billion kWh from fiscal 2004 through 2010 in Management Vision 2010 a year ahead of the original plan. Sales volume expanded approximately 1.8 billion kWh in fiscal 2009. The household sector accounted for 0.7 billion kWh, and the corporate and large-scale sector accounted for 1.1 billion kWh of the expanded demand.

In the household sector, the cumulative number of all-electric homes reached 700,000 as of December 31, 2009. TEPCO achieved a year-on-year incremental increase in the number of all-electric homes from 142,000 to 143,000 through its active marketing efforts despite a substantial 30 percent year-on-year decrease in the number of housing starts owing to the recession. Steady growth in the number of homes remodelled into all-electric was a major factor in the achievement.

To further promote all-electric housing, since April 2009 TEPCO has been successively opening "Switch! Station" new-style showrooms for customers to experience the advantages of all-electric living. As awareness of all-electric housing increases, TEPCO is taking this new approach to a variety of customers in the housing market. We now see growing numbers of all-electric systems, not only for new houses and condominiums but also for rental housing complexes and home remodeling. The hands-on showrooms are places to learn everything about all-electric living by seeing and experiencing state-of-the-art electric appliances, and to support housing industry professionals.

In the corporate and large-scale sector, we actively propose adopting our environmentally friendly energy solutions that utilize our electricity with efficient heat-pump and induction heating technology as we regard environmental regulation tightening at both national and local government levels as a great opportunity to promote our energy services. Even in a challenging economy, we successfully expanded our electricity sales volume this fiscal year to customers such as commercial complexes, educational institutions, medical centers, and food-processing and pharmaceutical companies, which gave a high appraisal to our energy-efficient, low-emission and economical electric appliances and systems for a low-carbon society.

Switch! Stations

Switch! Station Pro Asuka

TEPCO Electrified Factory P

At Switch! Stations for residential customers, visitors can see, touch and experience various advantages of the latest electric appliances such as IH cookings and Eco Cute water heater.

TEPCO makes comprehensive proposals for creating ideal kitchens to all customers associated with cooking and food-processing by allowing them to see, touch, experience and understand state-of-the-art professional electric kitchen systems.

This facility highlights using electricity for heating, the primary energy type used in production processes. TEPCO proposes next-generation production systems through manufacturing process innovation using the latest induction heating and heat-pump technology for improvement of product quality and productivity.

Sample of performance highlight, TEPCO annual report 2010 (continued)

In 2007, TEPCO opened two facilities to reach business customers. Switch! Station Pro Ariake showroom, a comprehensive hands-on facility, meets a range of needs related to cooking and food-processing by demonstrating the benefits of leading-edge kitchen systems. On the other hand, TEPCO Electrified Factory P proposes next-generation production systems through manufacturing process innovations with the latest technology such as heat pump and induction heating. These hands-on facilities allow us to propose optimal solutions to professional customers based on an accurate understanding of their needs. In addition, utilizing such hands-on showrooms facilitates effective and efficient business initiatives to further expand electricity sales volume through introducing the latest electric technology to uncover new business needs.

Fiscal 2009 Electricity Sales Volume

Total electricity sales volume in fiscal 2009 decreased 3.0 percent year on year to 280.2 billion kWh. Industrial demand dropped sharply due to a significant decline in production levels. In addition, lighting, low voltage power and commercial power demand recorded seasonal falls in summer 2009 mainly because of the decrease in air-conditioning demand due to lower air temperature during the period. Regulated lighting (or residential) sales volume was essentially flat at 96.1 billion kWh, and power (mainly to stores and small factories) sales volume decreased 4.3 percent to 11.4 billion kWh. On the other hand, sales volume to liberalized customers decreased 4.6 percent to 172.7 billion kWh.

Operating Revenues and Operating Income

In fiscal 2009, electricity sales decreased ¥791.4 billion year on year to ¥4,504.5 billion mainly because of a significant decrease in electricity sales volume and a drop in unit sales prices due to a downward revision of fuel prices under the fuel cost adjustment system. Including power sales to other utilities and suppliers, operating revenues from the electric power business were ¥4,733.3 billion.

Operating expenses decreased ¥1,045.2 billion year on year to ¥4,487.4 billion. In addition to an increase in nuclear power generated with the restart of Kashiwazaki-Kariwa Nuclear Power Station Units 6 and 7, fuel and power purchasing expenses declined substantially due to a sharp drop in crude oil prices. As a result, operating income increased ¥224.2 billion to ¥245.9 billion.

Electricity Sales Volume (million kWh)		FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Year-on-Year Change
Regulated	Lighting	92,592	95,186	93,207	97,600	96,059	96,089	0.0%
	Power	78,239	13,499	12,631	12,785	11,905	11,393	-4.3%
Liberalized	Eligible customers	115,910	179,969	181,784	187,012	180,992	172,686	-4.6%
Total		286,741	288,655	287,622	297,397	288,956	280,167	-3.0%

Electricity Sales Revenues (billion of yen)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Year-on-Year Change
Lighting (Residential)	1,976.8	2,022.4	1,983.4	2,096.2	2,207.8	2,008.6	-9.0%
Power, (Eligible customers (Commercial, Industrial and others)	2,660.4	2,659.5	2,721.1	2,818.4	3,088.1	2,495.9	-19.2%
Total	4,637.2	4,682.0	4,704.6	4,914.7	5,295.9	4,504.5	-14.9%

Note: Eligible customers are retail electric power customers included in the scope of liberalization.

2. Items contained in annual report

2) Operational system

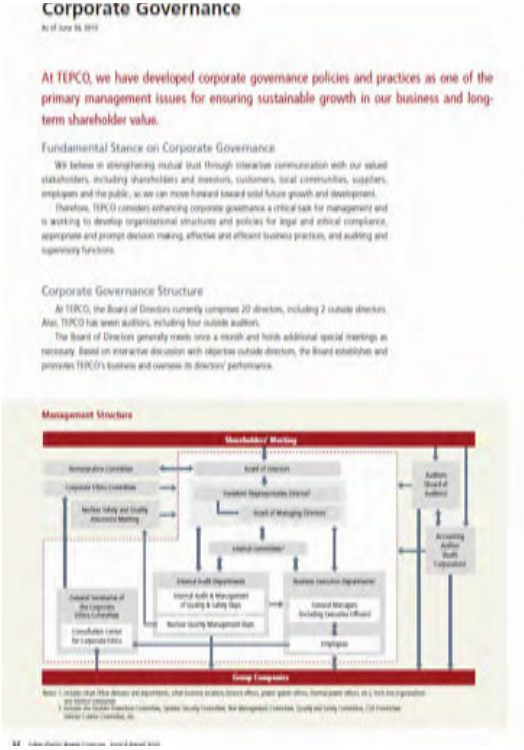
- Operational organization structure
- Name of in charge person
- Roles and responsibility of unit and in charge person

2. Items contained in annual report

Chapter 3: Organizational Management

1) Governance system

- Policy of the governance
  - Objective, roles and responsibility of management board
- Structure
- Board and committee organizational structure
  - Name of boards and committee members
  - Roles and responsibility of boards and committee members



Corporate Governance

As of June 30, 2010

At TEPCO, we have developed corporate governance policies and practices as one of the primary management issues for ensuring sustainable growth in our business and long-term shareholder value.

Fundamental Stance on Corporate Governance

We believe in strengthening mutual trust through interactive communication with our valued stakeholders, including shareholders and investors, customers, local communities, suppliers, employees and the public, so we can move forward toward solid future growth and development.

Therefore, TEPCO considers enhancing corporate governance a critical task for management and is working to develop organizational structures and policies for legal and ethical compliance, appropriate and prompt decision making, effective and efficient business practices, and auditing and supervisory functions.

Corporate Governance Structure

At TEPCO, the Board of Directors currently comprises 20 directors, including 2 outside directors. Also, TEPCO has seven auditors, including four outside auditors.

The Board of Directors generally meets once a month and holds additional special meetings as necessary. Based on interactive discussion with objective outside directors, the Board establishes and promotes TEPCO's business and oversees its directors' performance.

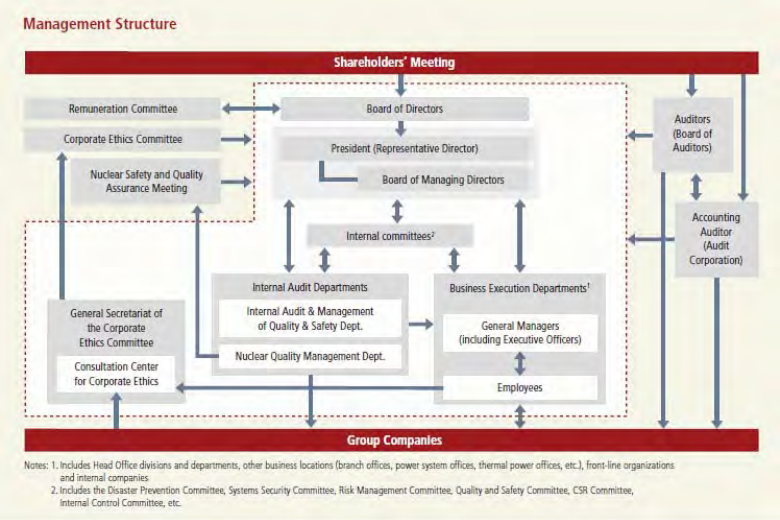
Management Structure

Sample of corporate governance, TEPCO annual report 2010

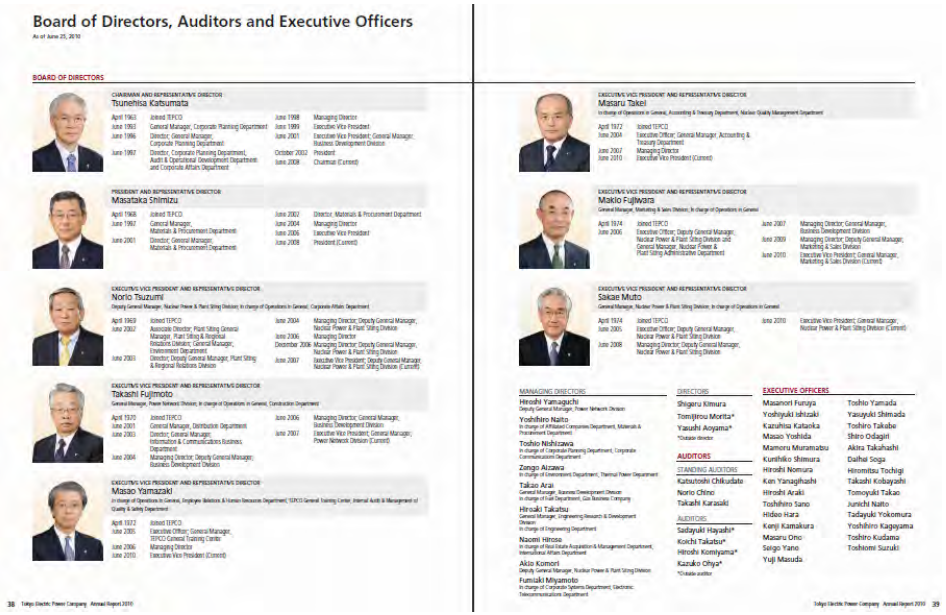
They also mentioned their corporate governance, structure, system, policy and plan

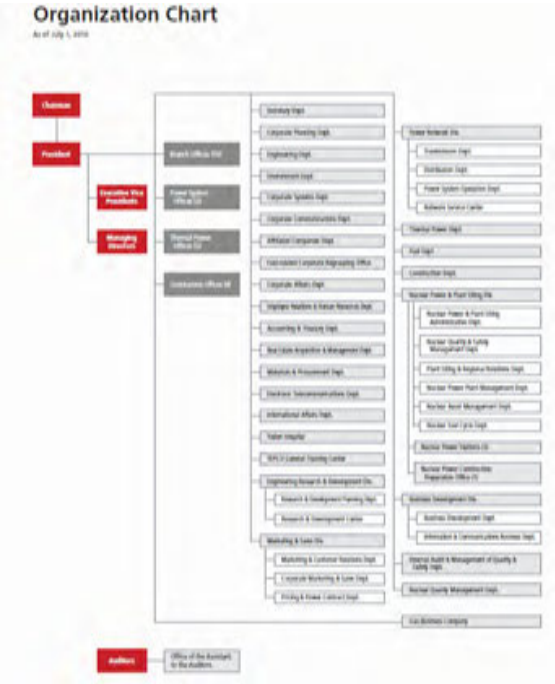
Sample of corporate governance system (=organization structure), TEPCO annual report 2010

For WUSC, it is same as board of directors' organization, roles and responsibility



Sample of board members list, TEPCO annual report 2010





Sample of operational organizational structure, TEPCO annual report 2010

2. Items contained in annual report

Chapter 4: Auditor's statement and related financial statement

1) Auditor's report

2) Financial statement

- Income statement (with budget comparison) *1)
- Balance sheet
- Cash flow statement, if possible *2)
- Retain and earning report, if possible
- List of major infrastructure asset *3)
- Attachment for support auditor's comment, income statement and balance sheet, if necessary
- Budget for next fiscal year

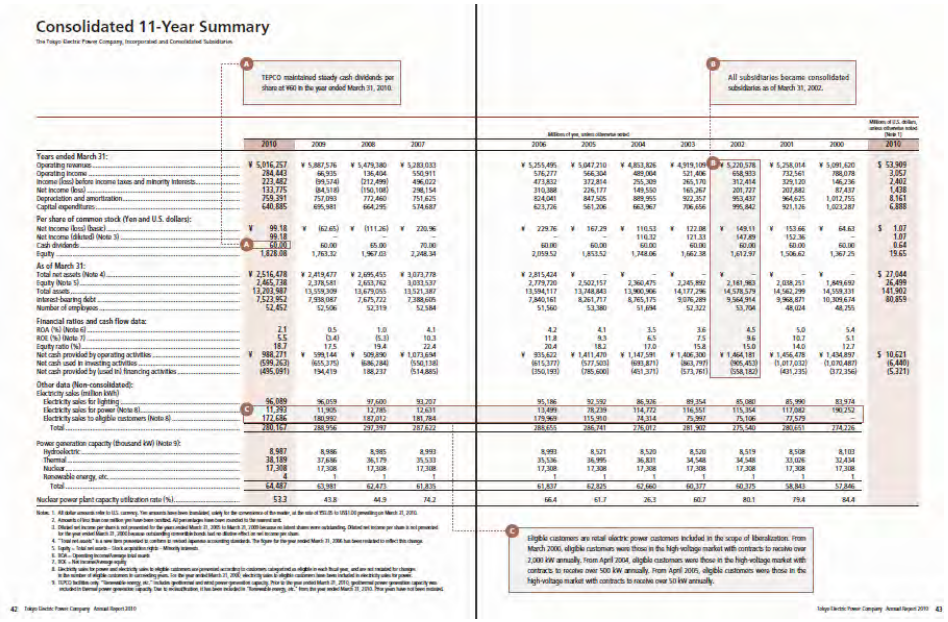
2. Items contained in annual report

*1) For report to assisting agencies, it may recommendable to mentioning about grant, subsidiary and how they use, e.g. 20 million NR granted from GOJ and spend all for construction of new water purification plant as footnote of income statement, if in case of these are significant.

*2) If cash flow statement is not requested in annual report, no necessary to incorporate. Please follow accounting and report standard of Nepal.

*3) It may recommendable to including list of major infrastructure asset with capacity

Sample of financial summary, TEPCO annual report 2010



Consolidated 11-Year Summary

The Tokyo Electric Power Company, Incorporated and Consolidated Subsidiaries

A TEPCO maintained steady cash dividends per share at ¥60 in the year ended March 31, 2010.

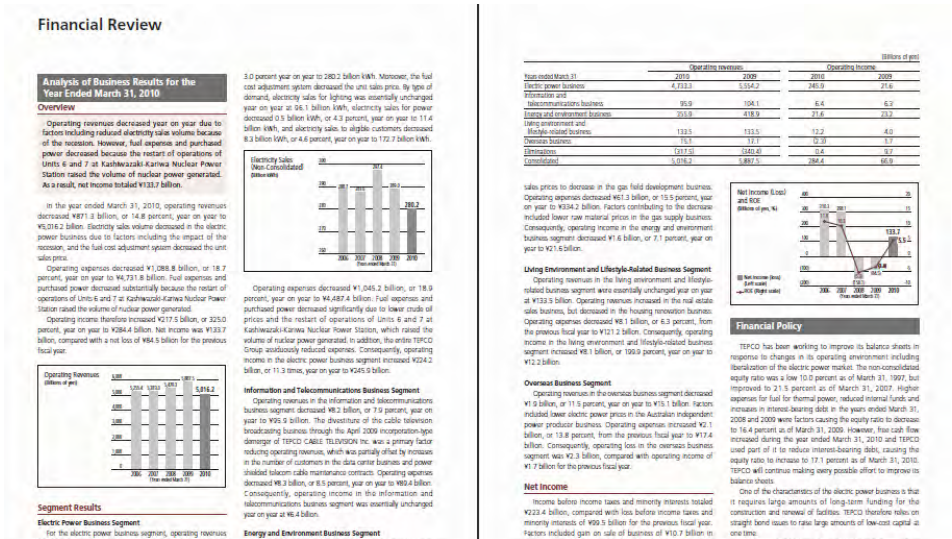
B All subsidiaries became consolidated subsidiaries as of March 31, 2002.

	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	2010
Years ended March 31:												
Operating revenues	¥ 5,016,257	¥ 5,087,576	¥ 5,479,380	¥ 5,383,033	¥ 5,259,495	¥ 5,047,210	¥ 4,853,826	¥ 4,919,109	¥ 5,230,578	¥ 5,258,014	¥ 5,091,620	$ 53,909
Operating income	284,443	66,935	136,494	550,911	576,777	566,304	489,004	521,406	658,933	732,561	788,078	3,057
Income (loss) before income taxes and minority interests	223,482	(99,574)	(212,499)	496,622	473,832	372,814	255,309	265,170	312,414	329,120	146,236	2,402
Net income (loss)	133,775	(84,518)	(150,108)	298,154	310,388	226,177	149,550	165,267	201,727	207,882	87,437	1,438
Depreciation and amortization	759,291	757,093	772,460	751,625	824,041	847,505	889,955	922,357	953,437	964,625	1,012,755	8,161
Capital expenditures	640,885	695,981	664,295	574,687	623,726	561,206	663,967	706,656	995,842	921,126	1,023,287	6,888
Per share of common stock (Yen and U.S. dollars):												
Net income (loss) (basic)	¥ 99.18	¥ (62.65)	¥ (111.26)	¥ 220.96	¥ 229.76	¥ 167.29	¥ 110.53	¥ 122.08	¥ 149.11	¥ 153.66	¥ 64.63	$ 1.07
Net income (diluted) (Note 3)	99.18	—	—	—	—	—	110.32	121.33	147.89	152.36	—	1.07
Cash dividends A	60.00	60.00	65.00	70.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	0.64
Equity	1,828.08	1,763.32	1,967.03	2,248.34	2,059.52	1,853.52	1,748.06	1,662.38	1,612.97	1,506.62	1,367.25	19.65
As of March 31:												
Total net assets (Note 4)	¥ 2,516,478	¥ 2,419,477	¥ 2,695,455	¥ 3,073,778	¥ 2,815,424	¥ —	¥ —	¥ —	¥ —	¥ —	¥ —	$ 27,044
Equity (Note 5)	2,465,738	2,378,581	2,653,762	3,033,537	2,779,720	2,502,157	2,360,475	2,245,892	2,181,983	2,038,251	1,849,692	26,499
Total assets	13,203,987	13,559,309	13,679,055	13,521,387	13,594,117	13,248,843	13,900,906	14,177,296	14,578,579	14,562,299	14,559,331	141,902
Interest-bearing debt	7,523,952	7,930,087	7,675,722	7,388,605	7,840,161	8,261,717	8,765,375	9,076,289	9,564,954	9,968,871	10,309,674	80,859
Number of employees	52,452	52,506	52,319	52,584	51,560	53,380	51,694	52,322	53,758	48,024	48,255	
Financial ratios and cash flow data:												
ROA (%) (Note 6)	2.1	0.5	1.0	4.1	4.2	4.1	3.5	3.6	4.5	5.0	5.4	
ROE (%) (Note 7)	5.5	(3.4)	(5.3)	10.3	11.8	9.3	6.3	7.5	9.6	10.7	5.1	
Equity ratio (%)	18.7	17.5	19.4	22.4	20.4	18.7	17.0	15.8	15.0	14.0	12.7	
Net cash provided by operating activities	¥ 988,271	¥ 599,144	¥ 509,890	¥ 1,073,694	¥ 935,622	¥ 1,411,470	¥ 1,147,591	¥ 1,406,300	¥ 1,464,181	¥ 1,456,478	¥ 1,434,897	$ 10,621
Net cash used in investing activities	(599,263)	(655,375)	(686,184)	(550,138)	(815,377)	(577,503)	(683,871)	(863,797)	(906,453)	(1,017,032)	(1,070,487)	(6,440)
Net cash provided by (used in) financing activities	(495,091)	194,419	188,237	(514,885)	(350,195)	(785,600)	(451,371)	(573,765)	(558,182)	(431,235)	(372,356)	(5,221)
Other data (Non-consolidated):												
Electricity sales (million kWh)												
Electricity sales for lighting	96,089	96,059	97,600	93,207	95,186	92,592	86,926	89,354	85,080	85,990	83,974	
Electricity sales for power (Note 8) C	11,293	11,905	12,785	12,631	13,499	78,239	114,772	116,557	115,354	117,062	190,252	
Electricity sales to eligible customers (Note 8)	172,686	180,992	187,012	181,784	179,969	115,910	24,314	25,397	75,196	77,579	—	
Total	280,167	288,956	297,397	287,622	288,655	286,741	226,012	231,302	275,540	280,631	274,226	
Power generation capacity (thousand kW) (Note 9):												
Hydroelectric	8,987	8,986	8,985	8,993	8,993	8,521	8,520	8,520	8,519	8,508	8,103	
Thermal	38,189	37,686	36,179	35,533	35,536	36,995	36,831	34,548	34,548	33,026	32,434	
Nuclear	17,308	17,308	17,308	17,308	17,308	17,308	17,308	17,308	17,308	17,308	17,308	
Renewable energy, etc.	1	1	1	1	1	1	1	1	1	1	1	
Total	64,487	63,981	62,473	61,835	61,837	62,825	62,660	60,377	60,375	58,843	57,846	
Nuclear power plant capacity utilization rate (%)	53.2	43.8	44.9	74.2	66.4	61.7	26.3	60.7	80.1	79.4	84.4	

Notes: 1. All dollar amounts refer to U.S. currency. Yen amounts have been translated, solely for the convenience of the reader, at the rate of ¥93.05 to US$100 prevailing on March 31, 2010.
2. Amounts of less than one million yen have been omitted. All percentages have been rounded to the nearest unit.
3. Diluted net income per share is not presented for the years ended March 31, 2005 to March 31, 2009 because no latent shares were outstanding. Diluted net income per share is not presented for the year ended March 31, 2000 because outstanding convertible bonds had no dilutive effect on net income per share.
4. "Total net assets" is a new item presented in conformity to revised Japanese accounting standards. The figure for the year ended March 31, 2006 has been restated to reflect this change.
5. Equity = Total net assets − Stock acquisition rights − Minority interests.
6. ROA = Operating income/Average total assets
7. ROE = Net income/Average equity
8. Electricity sales for power and electricity sales to eligible customers are presented according to customers categorized as eligible in each fiscal year, and are not restated for changes in the number of eligible customers in corresponding years. For the year ended March 31, 2000, electricity sales to eligible customers have been included in electricity sales for power.
9. "Renewable energy, etc." includes geothermal and wind power generation capacity. Prior to the year ended March 31, 2010, geothermal power generation capacity was included in thermal power generation capacity. Due to reclassification, it has been included in "Renewable energy, etc." from the year ended March 31, 2010. Prior years have not been restated.

C Eligible customers are retail electric power customers included in the scope of liberalization: From March 2000, eligible customers were those in the high-voltage market with contracts to receive over 2,000 kW annually. From April 2004, eligible customers were those in the high-voltage market with contracts to receive over 500 kW annually. From April 2005, eligible customers were those in the high-voltage market with contracts to receive over 50 kW annually.

Sample of financial review, TEPCO annual report 2010



Financial Review

Analysis of Business Results for the Year Ended March 31, 2010

Overview

Operating revenues decreased year on year due to factors including reduced electricity sales volume because of the recession. However, fuel expenses and purchased power decreased because the restart of operations of Units 6 and 7 at Kashiwazaki-Kariwa Nuclear Power Station raised the volume of nuclear power generated. As a result, net income totaled ¥133.7 billion.

In the year ended March 31, 2010, operating revenues decreased ¥871.3 billion, or 14.8 percent, year on year to ¥5,016.2 billion. Electricity sales volume decreased in the electric power business due to factors including the impact of the recession, and the fuel cost adjustment system decreased the unit sales price.

Operating expenses decreased ¥1,088.8 billion, or 18.7 percent, year on year to ¥4,731.8 billion. Fuel expenses and purchased power decreased substantially because the restart of operations of Units 6 and 7 at Kashiwazaki-Kariwa Nuclear Power Station raised the volume of nuclear power generated.

Operating income therefore increased ¥217.5 billion, or 325.0 percent, year on year to ¥284.4 billion. Net income was ¥133.7 billion, compared with a net loss of ¥84.5 billion for the previous fiscal year.

Segment Results

Electric Power Business Segment

For the electric power business segment, operating revenues including intercompany transactions decreased ¥820.9 billion, or 14.8 percent, year on year to ¥4,733.3 billion. Demand from large-scale industrial customers decreased significantly due to the recession, which was a key factor that caused the total volume of electricity sold for the fiscal year to decrease 8.8 billion kWh, or 3.0 percent year on year to 280.2 billion kWh. Moreover, the fuel cost adjustment system decreased the unit sales price. By type of demand, electricity sales for lighting was essentially unchanged year on year at 96.1 billion kWh, electricity sales for power decreased 0.5 billion kWh, or 4.3 percent, year on year to 11.4 billion kWh, and electricity sales to eligible customers decreased 8.3 billion kWh, or 4.6 percent, year on year to 172.7 billion kWh.

Operating expenses decreased ¥1,046.2 billion, or 18.9 percent, year on year to ¥4,487.4 billion. Fuel expenses and purchased power decreased significantly due to lower crude oil prices and the restart of operations of Units 6 and 7 at Kashiwazaki-Kariwa Nuclear Power Station, which raised the volume of nuclear power generated. In addition, the entire TEPCO Group assiduously reduced expenses. Consequently, operating income in the electric power business segment increased ¥224.2 billion, or 11.3 times, year on year to ¥245.9 billion.

Information and Telecommunications Business Segment

Operating revenues in the information and telecommunications business segment decreased ¥8.2 billion, or 7.9 percent, year on year to ¥96.9 billion. The divestiture of the cable television broadcasting business through the April 2009 incorporation-type demerger of TEPCO CABLE TELEVISION Inc. was a primary factor reducing operating revenues, which was partially offset by increases in the number of customers in the data center business and power shielded telecom cable maintenance contracts. Operating expenses decreased ¥8.3 billion, or 8.5 percent, year on year to ¥89.4 billion. Consequently, operating income in the information and telecommunications business segment was essentially unchanged year on year at ¥6.4 billion.

Energy and Environment Business Segment

Operating revenues in the energy and environment business segment decreased ¥63.0 billion, or 15.0 percent, year on year to ¥355.9 billion. Gas sales volume was essentially unchanged year on year, but sales prices declined in tandem with the decrease in the cost of LNG. Moreover, lower crude oil prices caused LNG

(Billions of yen)	Operating revenues		Operating income	
Years ended March 31	2010	2009	2010	2009
Electric power business	4,733.3	5,554.2	245.9	21.6
Information and telecommunications business	95.9	104.1	6.4	6.2
Energy and environment business	355.9	418.9	21.6	23.2
Living environment and lifestyle-related business	133.5	133.5	12.2	4.0
Overseas business	75.1	77.1	(2.3)	3.7
Eliminations	(377.5)	(340.4)	0.4	9.7
Consolidated	5,016.2	5,897.5	284.4	66.9

sales prices to decrease in the gas field development business. Operating expenses decreased ¥621.8 billion, or 15.5 percent, year on year to ¥3,394.2 billion. Factors contributing to the decrease included lower raw material prices in the gas supply business. Consequently, operating income in the energy and environment business segment decreased ¥1.6 billion, or 7.1 percent, year on year to ¥21.6 billion.

Living Environment and Lifestyle-Related Business Segment

Operating revenues in the living environment and lifestyle-related business segment were essentially unchanged year on year at ¥133.5 billion. Operating revenues increased in the real estate sales business, but decreased in the housing renovation business. Operating expenses decreased ¥8.1 billion, or 6.3 percent, from the previous fiscal year to ¥121.2 billion. Consequently, operating income in the living environment and lifestyle-related business segment increased ¥8.1 billion, or 199.9 percent, year on year to ¥12.2 billion.

Overseas Business Segment

Operating revenues in the overseas business segment decreased ¥1.9 billion, or 11.5 percent, year on year to ¥15.1 billion. Factors included lower electric power prices in the Australian independent power producer business. Operating expenses increased ¥2.1 billion, or 13.8 percent, from the previous fiscal year to ¥17.4 billion. Consequently, operating loss in the overseas business segment was ¥2.3 billion, compared with operating income of ¥1.7 billion for the previous fiscal year.

Net Income

Income before income taxes and minority interests totaled ¥223.4 billion, compared with loss before income taxes and minority interests of ¥99.5 billion for the previous fiscal year. Factors included gain on sale of business of ¥10.7 billion in connection with the divestiture of TEPCO CABLE TELEVISION's main businesses, including CATV broadcast operations. Income taxes net of deferrals totaled ¥86.7 billion. Net income was ¥133.7 billion, compared with net loss of ¥84.5 billion for the previous fiscal year. Net income per share was ¥99.18.

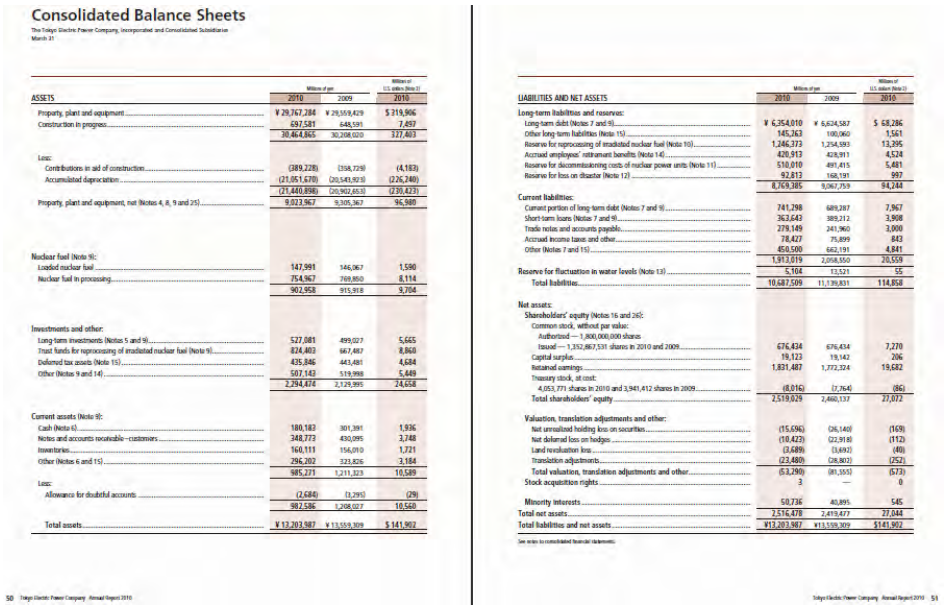
Financial Policy

TEPCO has been working to improve its balance sheets in response to changes in its operating environment including liberalization of the electric power market. The non-consolidated equity ratio was a low 10.0 percent as of March 31, 1997, but improved to 21.5 percent as of March 31, 2007. Higher expenses for fuel for thermal power, reduced internal funds and increases in interest-bearing debt in the years ended March 31, 2008 and 2009 were factors causing the equity ratio to decrease to 16.4 percent as of March 31, 2009. However, free cash flow increased during the year ended March 31, 2010 and TEPCO used part of it to reduce interest-bearing debt, causing the equity ratio to increase to 17.1 percent as of March 31, 2010. TEPCO will continue making every possible effort to improve its balance sheets.

One of the characteristics of the electric power business is that it requires large amounts of long-term funding for the construction and renewal of facilities. TEPCO therefore relies on straight bond issues to raise large amounts of low-cost capital at one time.

The impact of the financial crisis that began in September 2008 with the collapse of Lehman Brothers lingered in the year ended March 31, 2010. TEPCO issued bonds totaling about ¥240.0 billion during the fiscal year, with an emphasis on smooth issues of bonds with maturities that met investor needs.

Sample of financial statements (balance sheet), TEPCO annual report 2010



Consolidated Balance Sheets

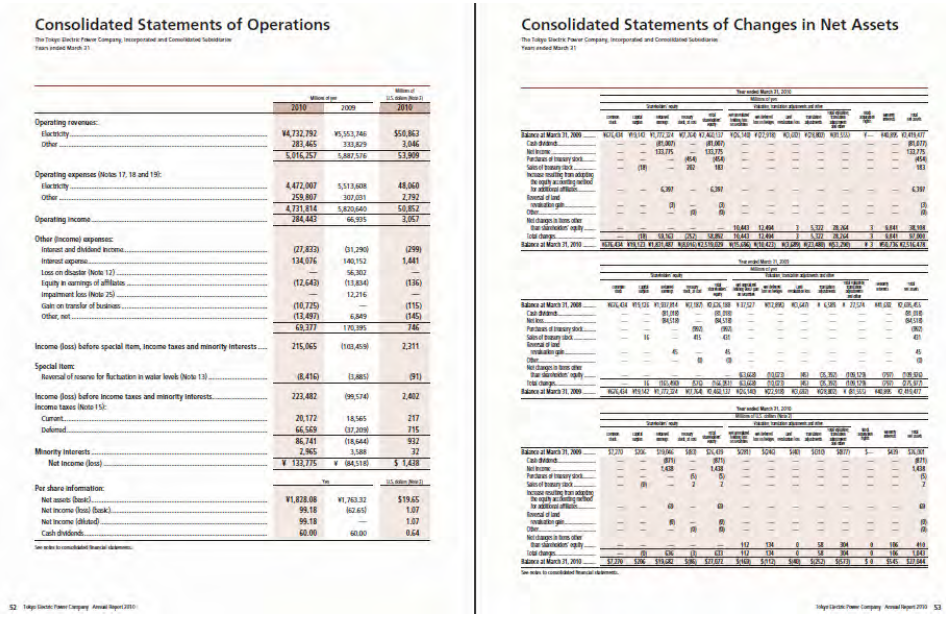
The Tokyo Electric Power Company, Incorporated and Consolidated Subsidiaries
March 31

ASSETS	Millions of yen 2010	2009	Millions of U.S. dollars (Note 1) 2010
Property, plant and equipment	¥ 29,767,284	¥ 29,559,429	$ 319,906
Construction in progress	697,581	648,591	7,497
	30,464,865	30,208,020	327,403
Less:			
Contributions in aid of construction	(389,228)	(358,729)	(4,183)
Accumulated depreciation	(21,051,670)	(20,543,923)	(226,240)
	(21,440,898)	(20,902,653)	(230,423)
Property, plant and equipment, net (Notes 4, 8, 9 and 25)	9,023,967	9,305,367	96,980
Nuclear fuel (Note 9):			
Loaded nuclear fuel	147,991	146,067	1,590
Nuclear fuel in processing	754,967	769,850	8,114
	902,958	915,918	9,704
Investments and other:			
Long-term investments (Notes 5 and 9)	527,081	499,027	5,665
Trust funds for reprocessing of irradiated nuclear fuel (Note 9)	824,403	667,487	8,860
Deferred tax assets (Note 15)	435,846	443,481	4,684
Other (Notes 9 and 14)	507,143	519,988	5,449
	2,294,474	2,129,995	24,658
Current assets (Note 9):			
Cash (Note 6)	180,183	301,391	1,936
Notes and accounts receivable—customers	348,773	430,095	3,748
Inventories	160,111	156,010	1,721
Other (Notes 6 and 15)	296,202	323,826	3,184
	985,271	1,211,323	10,589
Less:			
Allowance for doubtful accounts	(2,684)	(3,295)	(29)
	982,586	1,208,027	10,560
Total assets	¥ 13,203,987	¥ 13,559,309	$ 141,902

LIABILITIES AND NET ASSETS	Millions of yen 2010	2009	Millions of U.S. dollars (Note 1) 2010
Long-term liabilities and reserves:			
Long-term debt (Notes 7 and 9)	¥ 6,354,010	¥ 6,674,587	$ 68,286
Other long-term liabilities (Note 15)	145,263	100,060	1,561
Reserve for reprocessing of irradiated nuclear fuel (Note 10)	1,246,373	1,254,593	13,395
Accrued employees' retirement benefits (Note 14)	420,913	428,911	4,524
Reserve for decommissioning costs of nuclear power units (Note 11)	450,010	491,415	5,481
Reserve for loss on disaster (Note 12)	92,813	168,191	997
	8,769,385	9,067,759	94,244
Current liabilities:			
Current portion of long-term debt (Notes 7 and 9)	741,298	689,287	7,967
Short-term loans (Notes 7 and 9)	363,643	389,212	3,908
Trade notes and accounts payable	279,149	241,960	3,000
Accrued income taxes and other	78,427	75,899	843
Other (Notes 7 and 15)	450,500	642,191	4,841
	1,913,019	2,038,550	20,559
Reserve for fluctuation in water levels (Note 13)	5,104	13,521	55
Total liabilities	10,687,509	11,119,831	114,858
Net assets:			
Shareholders' equity (Notes 16 and 26):			
Common stock, without par value:			
Authorized — 1,800,000,000 shares			
Issued — 1,352,867,531 shares in 2010 and 2009	676,434	676,434	7,270
Capital surplus	19,123	19,142	206
Retained earnings	1,831,487	1,772,324	19,682
Treasury stock, at cost:			
4,053,771 shares in 2010 and 3,941,412 shares in 2009	(8,016)	(7,764)	(86)
Total shareholders' equity	2,519,029	2,460,137	27,072
Valuation, translation adjustments and other:			
Net unrealized holding loss on securities	(15,696)	(26,140)	(169)
Net deferral loss on hedges	(10,423)	(22,918)	(112)
Land revaluation loss	(3,689)	(3,692)	(40)
Translation adjustments	(23,480)	(28,802)	(252)
Total valuation, translation adjustments and other	(53,290)	(81,553)	(573)
Stock acquisition rights	3	—	0
Minority interests	50,736	40,895	545
Total net assets	2,516,478	2,419,477	27,044
Total liabilities and net assets	¥13,203,987	¥13,559,309	$141,902

See notes to consolidated financial statements.

Sample of financial statements (income statement), TEPCO annual report 2010



Consolidated Statements of Operations

The Tokyo Electric Power Company, Incorporated and Consolidated Subsidiaries
Years ended March 31

	Millions of yen		Millions of U.S. dollars (Note 2)
	2010	2009	2010
Operating revenues:			
Electricity	¥4,732,792	¥5,553,746	$50,863
Other	283,465	333,829	3,046
	5,016,257	5,887,576	53,909
Operating expenses (Notes 17, 18 and 19):			
Electricity	4,472,007	5,513,608	48,060
Other	259,807	307,051	2,792
	4,731,814	5,820,660	50,852
Operating income	284,443	66,915	3,057
Other (income) expenses:			
Interest and dividend income	(27,833)	(31,290)	(299)
Interest expense	134,076	140,152	1,441
Loss on disaster (Note 12)	—	56,302	—
Equity in earnings of affiliates	(12,643)	(13,804)	(136)
Impairment loss (Note 25)	—	12,216	—
Gain on transfer of business	(10,725)	—	(115)
Other, net	(13,497)	6,849	(145)
	69,377	170,395	746
Income (loss) before special item, income taxes and minority interests	215,065	(103,459)	2,311
Special item:			
Reversal of reserve for fluctuation in water levels (Note 13)	(8,416)	(3,885)	(91)
Income (loss) before income taxes and minority interests	223,482	(99,574)	2,402
Income taxes (Note 15):			
Current	20,172	18,565	217
Deferred	66,569	(37,309)	715
	86,741	(18,644)	932
Minority interests	2,965	3,588	32
Net income (loss)	¥ 133,775	¥ (84,518)	$ 1,438
	Yen		U.S. dollars (Note 2)
Per share information:			
Net assets (basic)	¥1,828.08	¥1,763.32	$19.65
Net income (loss) (basic)	99.18	(62.65)	1.07
Net income (diluted)	99.18	—	1.07
Cash dividends	60.00	60.00	0.64

See notes to consolidated financial statements.

Consolidated Statements of Changes in Net Assets

The Tokyo Electric Power Company, Incorporated and Consolidated Subsidiaries
Years ended March 31

Year ended March 31, 2010

Millions of yen	Shareholders' equity					Valuation, translation adjustments and other							
	Common stock	Capital surplus	Retained earnings	Treasury stock, at cost	Total shareholders' equity	Net unrealized gains (losses) on available-for-sale securities	Deferred gains or losses on hedges	Land revaluation loss	Foreign currency translation adjustments	Total valuation, translation adjustments and other	Stock acquisition rights	Minority interests	Total net assets
Balance at March 31, 2009	¥631,454	¥918,143	¥1,772,224	¥(7,364)	¥3,462,137	¥(24,148)	¥(27,919)	¥(5,020)	¥(29,903)	¥(86,991)	¥311,553	¥—	¥40,899	¥3,419,477
Cash dividends	—	—	(85,007)	—	(85,007)	—	—	—	—	—	—	—	—	(85,677)
Net income	—	—	133,775	—	133,775	—	—	—	—	—	—	—	—	133,775
Purchases of treasury stock	—	—	—	(454)	(454)	—	—	—	—	—	—	—	—	(454)
Sales of treasury stock	—	(19)	—	202	183	—	—	—	—	—	—	—	—	183
Increase resulting from adopting the equity accounting method for additional affiliates	—	—	4,397	—	4,397	—	—	—	—	—	—	—	—	4,397
Reversal of land revaluation gain	—	—	(3)	—	(3)	—	—	—	—	—	—	—	—	(3)
Other	—	—	—	(0)	(0)	—	—	—	—	—	—	—	—	(0)
Net changes in items other than shareholders' equity	—	—	—	—	—	10,443	12,494	3	5,322	28,264	3	6,841	35,108
Total changes	—	(19)	50,163	(252)	49,892	10,443	12,494	3	5,322	28,264	3	6,841	87,999
Balance at March 31, 2010	¥631,454	¥918,123	¥1,822,387	¥(8,616)	¥3,512,029	¥(13,705)	¥(15,425)	¥(5,016)	¥(24,581)	¥(58,727)	¥311,556	¥47,740	¥3,507,476

Year ended March 31, 2009

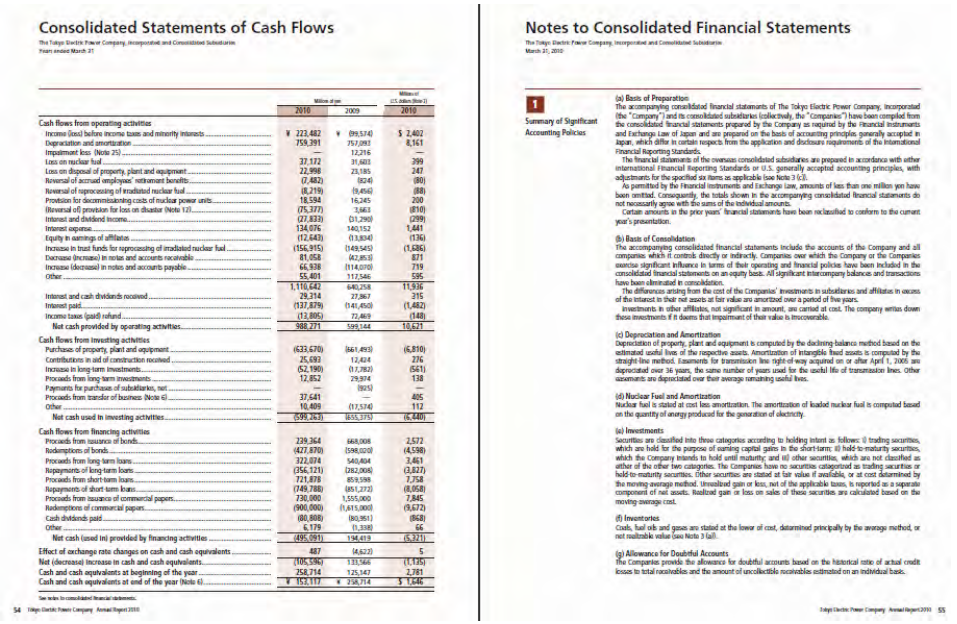
Millions of yen	Shareholders' equity					Valuation, translation adjustments and other							
	Common stock	Capital surplus	Retained earnings	Treasury stock, at cost	Total shareholders' equity	Net unrealized gains (losses) on available-for-sale securities	Deferred gains or losses on hedges	Land revaluation loss	Foreign currency translation adjustments	Total valuation, translation adjustments and other	Stock acquisition rights	Minority interests	Total net assets
Balance at March 31, 2008	¥631,454	¥918,125	¥1,931,814	¥(1,167)	¥3,478,226	¥37,527	¥(12,896)	¥(1,643)	¥ (1,589)	¥ 21,374	¥311,282	¥42,695	¥3,853,578
Cash dividends	—	—	(85,018)	—	(85,018)	—	—	—	—	—	—	—	(85,018)
Net loss	—	—	(84,518)	—	(84,518)	—	—	—	—	—	—	—	(84,518)
Purchases of treasury stock	—	—	—	(992)	(992)	—	—	—	—	—	—	—	(992)
Sales of treasury stock	—	16	—	61	77	—	—	—	—	—	—	—	77
Reversal of land revaluation gain	—	—	45	—	45	—	—	—	—	—	—	—	45
Other	—	—	(0)	(0)	(0)	—	—	—	—	—	—	—	(0)
Net changes in items other than shareholders' equity	—	—	—	—	—	(63,675)	(15,023)	(61)	(25,392)	(104,153)	(757)	(1,855)	(106,766)
Total changes	—	16	(169,492)	(931)	(170,407)	(63,675)	(15,023)	(61)	(25,392)	(104,153)	(757)	(1,855)	(277,317)
Balance at March 31, 2009	¥631,454	¥918,142	¥1,772,224	¥(1,364)	¥3,462,132	¥(26,148)	¥(27,919)	¥(5,020)	¥(26,981)	¥ (81,153)	¥310,525	¥40,899	¥3,453,477

Year ended March 31, 2010

Millions of U.S. dollars (Note 2)	Shareholders' equity					Valuation, translation adjustments and other							
	Common stock	Capital surplus	Retained earnings	Treasury stock, at cost	Total shareholders' equity	Net unrealized gains (losses) on available-for-sale securities	Deferred gains or losses on hedges	Land revaluation loss	Foreign currency translation adjustments	Total valuation, translation adjustments and other	Stock acquisition rights	Minority interests	Total net assets
Balance at March 31, 2009	$6,789	$9,866	$19,046	$(83)	$35,619	$(281)	$(300)	$(54)	$(321)	$(935)	$3,349	$439	$36,887
Cash dividends	—	—	(871)	—	(871)	—	—	—	—	—	—	—	(871)
Net income	—	—	1,438	—	1,438	—	—	—	—	—	—	—	1,438
Purchases of treasury stock	—	—	—	(5)	(5)	—	—	—	—	—	—	—	(5)
Sales of treasury stock	—	(0)	—	2	2	—	—	—	—	—	—	—	2
Increase resulting from adopting the equity accounting method for additional affiliates	—	—	43	—	43	—	—	—	—	—	—	—	43
Reversal of land revaluation gain	—	—	(0)	(0)	—	—	—	—	—	—	—	—	—
Other	—	—	(0)	(0)	—	—	—	—	—	—	—	—	—
Net changes in items other than shareholders' equity	—	—	—	—	—	112	134	0	58	304	0	106	410
Total changes	(0)	(0)	536	(3)	533	112	134	0	58	304	0	106	837
Balance at March 31, 2010	$6,789	$9,866	$19,582	$(86)	$37,072	$(169)	$(165)	$(54)	$(263)	$(631)	$3,349	$545	$37,724

See notes to consolidated financial statements.

Sample of financial statements (cash flow statement) and notes, TEPCO annual report 2010



Consolidated Statements of Cash Flows

The Tokyo Electric Power Company, Incorporated and Consolidated Subsidiaries
Years ended March 31

	Millions of yen		Millions of U.S. dollars (Note 2)
	2010	2009	2010
Cash flows from operating activities			
Income (loss) before income taxes and minority interests	¥ 223,482	¥ (99,574)	$ 2,402
Depreciation and amortization	759,391	757,093	8,161
Impairment loss (Note 25)	—	12,216	—
Loss on nuclear fuel	37,172	31,603	399
Loss on disposal of property, plant and equipment	22,998	23,185	247
Reversal of accrued employees' retirement benefits	(7,482)	(924)	(80)
Reversal of reprocessing of irradiated nuclear fuel	(8,219)	(9,454)	(88)
Provision for decommissioning costs of nuclear power units	18,594	16,245	200
(Reversal of) provision for loss on disaster (Note 12)	(75,377)	3,663	(810)
Interest and dividend income	(27,833)	(31,290)	(299)
Interest expense	134,076	140,152	1,441
Equity in earnings of affiliates	(12,643)	(13,804)	(136)
Increase in trust funds for reprocessing of irradiated nuclear fuel	(156,915)	(149,545)	(1,686)
Decrease (increase) in notes and accounts receivable	81,058	(42,851)	871
Increase (decrease) in notes and accounts payable	66,938	(114,070)	719
Other	55,401	117,546	595
	1,110,642	640,258	11,936
Interest and cash dividends received	29,314	27,967	315
Interest paid	(137,879)	(141,450)	(1,482)
Income taxes (paid) refund	(12,805)	72,469	(148)
Net cash provided by operating activities	988,271	599,144	10,621
Cash flows from investing activities			
Purchases of property, plant and equipment	(633,670)	(661,493)	(6,810)
Contributions in aid of construction received	25,692	12,424	276
Increase in long-term investments	(52,190)	(17,782)	(561)
Proceeds from long-term investments	12,852	29,974	138
Payments for purchases of subsidiaries, net	—	(925)	—
Proceeds from transfer of business (Note 6)	37,641	—	405
Other	10,409	(17,574)	112
Net cash used in investing activities	(599,263)	(655,375)	(6,440)
Cash flows from financing activities			
Proceeds from issuance of bonds	239,364	668,008	2,572
Redemptions of bonds	(427,870)	(598,020)	(4,598)
Proceeds from long-term loans	322,074	540,404	3,461
Repayments of long-term loans	(356,121)	(282,008)	(3,827)
Proceeds from short-term loans	721,878	859,598	7,758
Repayments of short-term loans	(749,788)	(891,272)	(8,058)
Proceeds from issuance of commercial papers	730,000	1,555,000	7,845
Redemptions of commercial papers	(900,000)	(1,611,000)	(9,672)
Cash dividends paid	(80,808)	(80,951)	(868)
Other	6,179	(1,338)	66
Net cash (used in) provided by financing activities	(495,091)	134,419	(5,321)
Effect of exchange rate changes on cash and cash equivalents	487	(4,623)	5
Net (decrease) increase in cash and cash equivalents	(105,596)	133,566	(1,135)
Cash and cash equivalents at beginning of the year	258,714	125,147	2,781
Cash and cash equivalents at end of the year (Note 6)	¥ 153,117	¥ 258,714	$ 1,646

See notes to consolidated financial statements.

Notes to Consolidated Financial Statements

The Tokyo Electric Power Company, Incorporated and Consolidated Subsidiaries
March 31, 2010

1 Summary of Significant Accounting Policies

(a) Basis of Preparation

The accompanying consolidated financial statements of The Tokyo Electric Power Company, Incorporated (the "Company") and its consolidated subsidiaries (collectively, the "Companies") have been compiled from the consolidated financial statements prepared by the Company as required by the Financial Instruments and Exchange Law of Japan and are prepared on the basis of accounting principles generally accepted in Japan, which differ in certain respects from the application and disclosure requirements of the International Financial Reporting Standards.

The financial statements of the overseas consolidated subsidiaries are prepared in accordance with either International Financial Reporting Standards or U.S. generally accepted accounting principles, with adjustments for the specified six items as applicable (see Note 3 (c)).

As permitted by the Financial Instruments and Exchange Law, amounts of less than one million yen have been omitted. Consequently, the totals shown in the accompanying consolidated financial statements do not necessarily agree with the sums of the individual amounts.

Certain amounts in the prior years' financial statements have been reclassified to conform to the current year's presentation.

(b) Basis of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and all companies which it controls directly or indirectly. Companies over which the Company or the Companies exercise significant influence in terms of their operating and financial policies have been included in the consolidated financial statements on an equity basis. All significant intercompany balances and transactions have been eliminated in consolidation.

The differences arising from the cost of the Companies' investments in subsidiaries and affiliates in excess of the interest in their net assets at fair value are amortized over a period of five years.

Investments in other affiliates, not significant in amount, are carried at cost. The Company writes down these investments if it deems that impairment of their value is irrecoverable.

(c) Depreciation and Amortization

Depreciation of property, plant and equipment is computed by the declining-balance method based on the estimated useful lives of the respective assets. Amortization of intangible fixed assets is computed by the straight-line method. Easements for transmission line right-of-way acquired on or after April 1, 2005 are depreciated over 36 years, the same number of years used for the useful life of transmission lines. Other easements are depreciated over their average remaining useful lives.

(d) Nuclear Fuel and Amortization

Nuclear fuel is stated at cost less amortization. The amortization of loaded nuclear fuel is computed based on the quantity of energy produced for the generation of electricity.

(e) Investments

Securities are classified into three categories according to holding intent as follows: i) trading securities, which are held for the purpose of earning capital gains in the short-term; ii) held-to-maturity securities, which the Company intends to hold until maturity; and iii) other securities, which are not classified as either of the other two categories. The Companies have no securities categorized as trading securities or held-to-maturity securities. Other securities are stated at fair value if available, or at cost determined by the moving average method. Unrealized gain or loss, net of the applicable taxes, is reported as a separate component of net assets. Realized gain or loss on sales of these securities are calculated based on the moving-average cost.

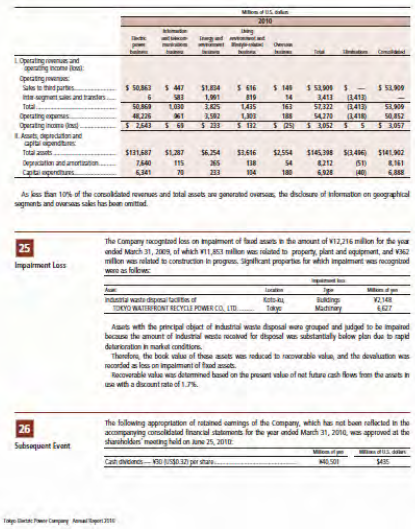
(f) Inventories

Coals, fuel oils and gases are stated at the lower of cost, determined principally by the average method, or net realizable value (see Note 3 (a)).

(g) Allowance for Doubtful Accounts

The Companies provide the allowance for doubtful accounts based on the historical rate of actual credit losses to total receivables and the amount of uncollectible receivables estimated on an individual basis.

Sample of notes and auditor's report, TEPCO annual report 2010



Millions of U.S. dollars

	2010							
	Electric power business	Information and telecom solutions business	Energy and environment business	Living, environment and lifestyle-related business	Overseas business	Total	Eliminations	Consolidated
I. Operating revenues and operating income (loss):								
Operating revenues:								
Sales to third parties	$ 50,863	$ 447	$1,834	$ 616	$ 149	$ 53,909	$ —	$ 53,909
Inter-segment sales and transfers	6	583	1,991	819	14	3,413	(3,413)	—
Total	50,869	1,030	3,825	1,435	163	57,322	(3,413)	53,909
Operating expenses	48,226	961	3,582	1,303	188	54,270	(1,418)	50,852
Operating income (loss)	$ 2,643	$ 69	$ 233	$ 132	$ (25)	$ 3,052	$ 5	$ 3,057
II. Assets, depreciation and capital expenditures:								
Total assets	$131,687	$1,287	$6,254	$3,616	$2,554	$145,398	$(3,496)	$141,902
Depreciation and amortization	7,640	115	365	118	54	8,212	(51)	8,161
Capital expenditures	6,841	70	253	104	180	6,928	(40)	6,888

As less than 10% of the consolidated revenues and total assets are generated overseas, the disclosure of information on geographical segments and overseas sales has been omitted.

25 Impairment Loss

The Company recognized loss on impairment of fixed assets in the amount of ¥12,216 million for the year ended March 31, 2009, of which ¥11,853 million was related to property, plant and equipment, and ¥362 million was related to construction in progress. Significant properties for which impairment was recognized were as follows:

		Impairment loss	
Asset	Location	Type	Millions of yen
Industrial waste disposal facilities of TOKYO WATERFRONT RECYCLE POWER CO., LTD.	Koto-ku, Tokyo	Buildings, Machinery	¥2,148, 4,627

Assets with the principal object of industrial waste disposal were grouped and judged to be impaired because the amount of industrial waste received for disposal was substantially below plan due to rapid deterioration in market conditions.

Therefore, the book value of these assets was reduced to recoverable value, and the devaluation was recorded as loss on impairment of fixed assets.

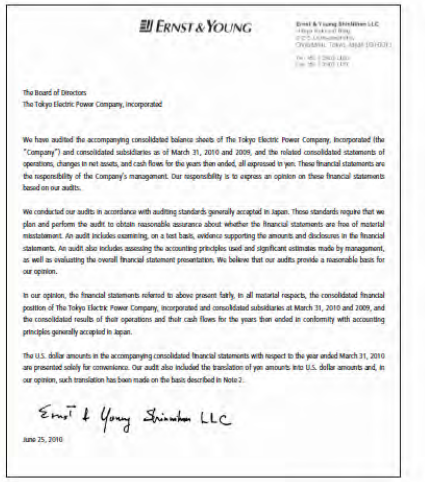
Recoverable value was determined based on the present value of net future cash flows from the assets in use with a discount rate of 1.7%.

26 Subsequent Event

The following appropriation of retained earnings of the Company, which has not been reflected in the accompanying consolidated financial statements for the year ended March 31, 2010, was approved at the shareholders' meeting held on June 25, 2010:

	Millions of yen	Millions of U.S. dollars
Cash dividends — ¥30 ($0.32) per share	¥40,501	$435

Report of Independent Auditors



ERNST & YOUNG

Ernst & Young ShinNihon LLC
Hibiya Kokusai Bldg.
2-2-3, Uchisaiwaicho,
Chiyoda-ku, Tokyo, 100-0011, Japan
Tel: +81 3 3503 1100
Fax: +81 3 3503 1197

The Board of Directors
The Tokyo Electric Power Company, Incorporated

We have audited the accompanying consolidated balance sheets of The Tokyo Electric Power Company, Incorporated (the "Company") and consolidated subsidiaries as of March 31, 2010 and 2009, and the related consolidated statements of operations, changes in net assets, and cash flows for the years then ended, all expressed in yen. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of The Tokyo Electric Power Company, Incorporated and consolidated subsidiaries at March 31, 2010 and 2009, and the consolidated results of their operations and their cash flows for the years then ended in conformity with accounting principles generally accepted in Japan.

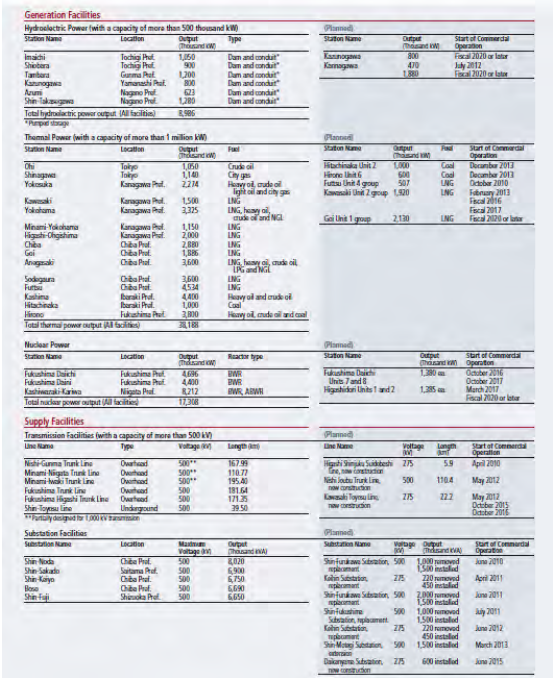
The U.S. dollar amounts in the accompanying consolidated financial statements with respect to the year ended March 31, 2010 are presented solely for convenience. Our audit also included the translation of yen amounts into U.S. dollar amounts and, in our opinion, such translation has been made on the basis described in Note 2.

Ernst & Young ShinNihon LLC

June 25, 2010

Major Facilities

As of March 31, 2010



Generation Facilities

Hydroelectric Power (with a capacity of more than 500 thousand kW)

Station Name	Location	Output (Thousand kW)	Type
Imaichi	Tochigi Pref.	1,050	Dam and conduit*
Shintoyo	Tochigi Pref.	900	Dam and conduit*
Tambara	Gunma Pref.	1,200	Dam and conduit*
Kazunogawa	Yamanashi Pref.	800	Dam and conduit*
Azumi	Nagano Pref.	623	Dam and conduit*
Shin-Takasegawa	Nagano Pref.	1,280	Dam and conduit*
Total hydroelectric power output (All facilities)		8,986	

*Pumped storage

(Planned)

Station Name	Output (Thousand kW)	Start of Commercial Operation
Kazunogawa	800	Fiscal 2020 or later
Kannagawa	470	July 2012
	1,880	Fiscal 2020 or later

Thermal Power (with a capacity of more than 1 million kW)

Station Name	Location	Output (Thousand kW)	Fuel
Ohi	Tokyo	1,050	Crude oil
Shinagawa	Tokyo	1,140	City gas
Yokosuka	Kanagawa Pref.	2,274	Heavy oil, crude oil, light oil and city gas
Kawasaki	Kanagawa Pref.	1,500	LNG
Yokohama	Kanagawa Pref.	3,325	LNG, heavy oil, crude oil and NGL
Minami-Yokohama	Kanagawa Pref.	1,150	LNG
Higashi-Ohgishima	Kanagawa Pref.	2,000	LNG
Chiba	Chiba Pref.	2,880	LNG
Goi	Chiba Pref.	1,886	LNG
Anegasaki	Chiba Pref.	3,600	LNG, heavy oil, crude oil, LPG and NGL
Sodegaura	Chiba Pref.	3,600	LNG
Futtsu	Chiba Pref.	4,534	LNG
Kashima	Ibaraki Pref.	4,400	Heavy oil and crude oil
Hitachinaka	Ibaraki Pref.	1,000	Coal
Hirono	Fukushima Pref.	3,800	Heavy oil, crude oil and coal
Total thermal power output (All facilities)		38,188	

(Planned)

Station Name	Output (Thousand kW)	Fuel	Start of Commercial Operation
Hitachinaka Unit 2	1,000	Coal	December 2013
Hirono Unit 6	600	Coal	December 2013
Futtsu Unit 4 group	507	LNG	October 2010
Kawasaki Unit 2 group	1,920	LNG	February 2013
			Fiscal 2016
			Fiscal 2017
Goi Unit 1 group	2,130	LNG	Fiscal 2020 or later

Nuclear Power

Station Name	Location	Output (Thousand kW)	Reactor type
Fukushima Daiichi	Fukushima Pref.	4,696	BWR
Fukushima Daini	Fukushima Pref.	4,400	BWR
Kashiwazaki-Kariwa	Niigata Pref.	8,212	BWR, ABWR
Total nuclear power output (All facilities)		17,308	

(Planned)

Station Name	Output (Thousand kW)	Start of Commercial Operation
Fukushima Daiichi Units 7 and 8	1,380 ea.	October 2016 October 2017
Higashidori Units 1 and 2	1,385 ea.	March 2017 Fiscal 2020 or later

Supply Facilities

Transmission Facilities (with a capacity of more than 500 kV)

Line Name	Type	Voltage (kV)	Length (km)
Nishi-Gunma Trunk Line	Overhead	500**	167.99
Minami-Niigata Trunk Line	Overhead	500**	110.72
Minami-Iwaki Trunk Line	Overhead	500**	195.40
Fukushima Trunk Line	Overhead	500	181.64
Fukushima Higashi Trunk Line	Overhead	500	171.35
Shin-Toyosu Line	Underground	500	39.50

**Trunk lines designed for 1,000 kV transmission

(Planned)

Line Name	Voltage (kV)	Length (km)	Start of Commercial Operation
Higashi Shimizu Substation, new construction	275	5.9	April 2010
Nishi Joju Trunk Line, new construction	500	110.4	May 2012
Kawasaki Toyosu Line, new construction	275	22.2	May 2012 October 2015 October 2015

Substation Facilities

Substation Name	Location	Maximum Voltage (kV)	Output (Thousand kVA)
Shin-Noda	Chiba Pref.	500	8,020
Shin-Sakado	Saitama Pref.	500	6,900
Shin-Kaiyo	Chiba Pref.	500	6,750
Ibaraki	Chiba Pref.	500	6,690
Shin-Fuji	Shizuoka Pref.	500	6,050

(Planned)

Substation Name	Voltage (kV)	Output (Thousand kVA)	Start of Commercial Operation
Shin-Fukaikawa Substation, replacement	500	1,800 removed 1,500 installed	June 2010
Kohin Substation, replacement	275	220 removed 450 installed	April 2011
Shin-Fukaikawa Substation, replacement	500	2,890 removed 1,500 installed	June 2011
Shin-Fukushima Substation, replacement	500	1,800 removed 1,500 installed	July 2011
Kohin Substation, replacement	275	220 removed 450 installed	June 2012
Shin-Matsuyo Substation, extension	500	1,500 installed	March 2013
Daikoyama Substation, new construction	275	600 installed	June 2015

Sample list of major infrastructure facilities with capacity, TEPCO annual report 2010

2. Items contained in annual report

Chapter 5: Functionally area service report

- Provide comprehensive information of each functional areas
- Customer services (including connection/disconnection, meter reading, complaints response, bulk sales and awareness campaign)
- Administrative (including procurement, stock control, HRM and asset management)
- Financial (including billing and collection, accounting and financial management)
- Technical (including water quality management, production and distribution, water supply management, leakage repair, sanitation facility construction and management and technical planning)
- Others

1. Concept of annual report
2. Items contained in annual report
3. Case

   Bureau of Waterworks, Tokyo Metropolitan Gov.

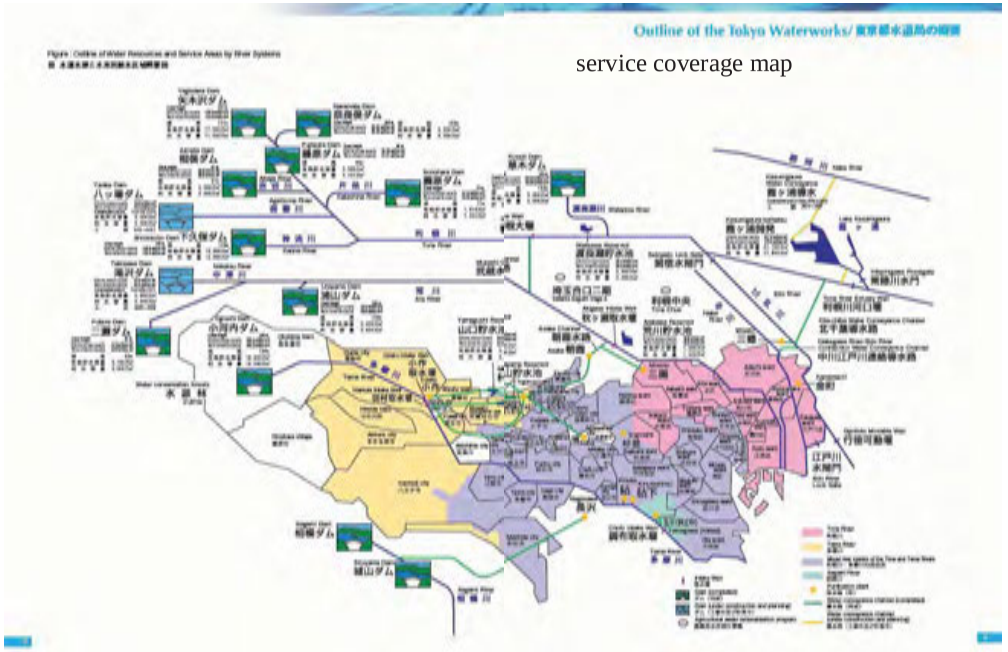
   Orange Country Water District, USA
4. Questions and answers
5. Discussion

3. Case: Bureau of Waterworks

3. Case: Bureau of Waterworks

- In Japan, water supply and sewerage service are provided by local government.
- Bureau of waterworks has responsibility for water production, distribution, billing and collection but not have responsibility for sewerage and sanitation. Sewerage and sanitation services are handled by Bureau of Sewerage under Tokyo Metropolitan Government.
- Since they are bureau, and bureau does not have responsibility for disclose annual report, but comprehensive information is disclosed by the Tokyo Metropolitan Government.
- This case for Bureau of Waterworks is introduce their service outline. Although this is not exactly annual report and financial report, but hope to have some idea.

- Please care their system and business are quite different with your WUSC
- Also they are one of largest urban water supply system in the world and no necessary to compare with your WUSC.
- Only reason I pick up this case is, I have only this case for water supply system in Japan written in English. Some Bureau of Waterworks disclose annual report but written in Japanese. Other waterworks do not disclose annual report.
- They have 3 years plan and long term plan. They report performance annually to the 3 year plan as well as long term plan.



service coverage map

2. Outline of the Tokyo Waterworks

1 Service Area

The Bureau of Waterworks supplies water to the 23 wards and 25 cities and towns in the Tama area. In addition, the bureau diverts water to three unincorporated cities in the Tama area that are not included in the service area.
For the five cities in the Tama area, we commission the affairs related to customer service, such as the collection of water bills, to the cities. We will dissolve these commissions sequentially in the future.

Table : Basic Data on Water Supply (As of March 2009 (Heisei 21))
表　給水区域面積等（平成21年3月現在）

Service area 給水区域面積	1222.78km²
Population served 給水人口	12,554,106人 (people)
Pervasion 普及率	100%
Number of service connections 給水件数	6,831,308件 (cases)
Total length of distribution pipes 配水管延長	25,823km
Total capacity of facilities 施設能力	6,859,500m³/日 (m³/day)
Total distribution amount per year 年間総配水量	1,581,925×10³m³
Maximum distribution amount per day 一日最大配水量	4,824,000m³/日 (m³/day)
Ave. distribution amount per day 一日平均配水量	4,334,000m³/日 (m³/day)

(note) Service area, population served, pervasion and number of service connections are numbers as of October 1st, 2009 (Heisei 20).
(注) 給水区域面積、給水人口、普及率及び給水件数については、平成20年10月1日を基準日とした。

2 Forecasting of the maximum distribution amount per day

The water demand in Tokyo has been increasing each year. In particular, during the high economic growth period from the early 60s (second half of Showa 30s) to the first half of the 70s (Showa 40s), water demand recorded a substantial increase due to the concentration of population and industries in the metropolitan areas of Tokyo.
However, after the oil crisis in the fall of 1973 (Showa 48), the upward trend of water demand slowed sharply due to the shift to a lower economic growth rate and penetration of a restrictive water demand policy. In recent years, due to the long economic slump, the maximum distribution amount per day leveled off or has been on a declining trend.
As for the water demand in the future, the average consumption amount per day is forecasted to increase continuously because water usage per person is expected to increase from the decrease in the average number of persons in the household. With this change, the maximum distribution amount per day is forecasted to total around 6 million m³ by FY 2013 (Heisei 25).

Figure : Transition of Average Consumption Amount per Day (Ward area + 26 cities and towns)
図 一日平均使用水量等の推移（区部＋26市町）

3 Organizational chart and personnel composition

The organizational structure and personnel composition of the Bureau of Waterworks are as shown below.

3 組織図及び職員構成

水道局の組織構成及び職員構成は、次のとおりである。

Figure : Organizational Chart of Tokyo Waterworks Bureau (As of April 2009 (Heisei 21))
図　東京都水道局組織図（平成21年4月現在）

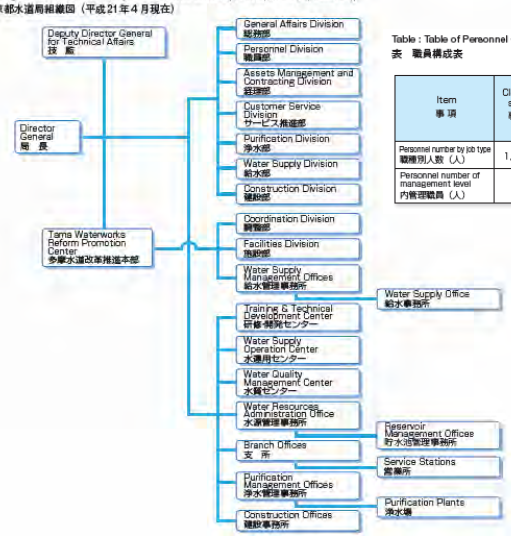


Table : Table of Personnel Composition
表　職員構成表

(As of April 1, 2009 (Heisei 21))
(平成21年4月1日現在)

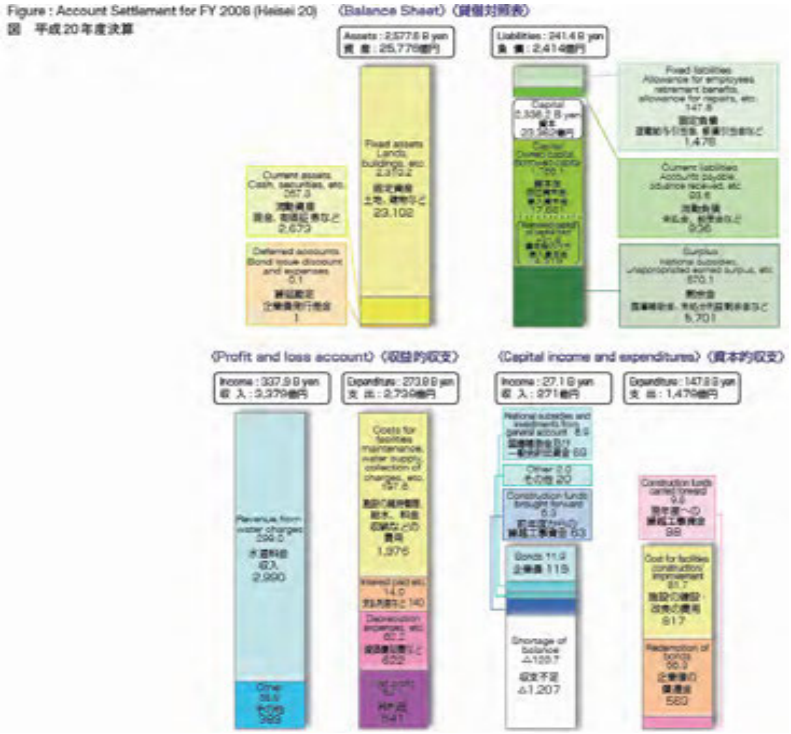
Item 事項	Clerical staff 事務	Engineering staff 技術系						Technician 技能	Total 合計
		Civil engineering 土木	Architecture 建築	Mechanical engineering 機械	Electric engineering 電気	Forestry 林業	Environmental inspection 環境検査		
Personnel number by job type 職種別人数（人）	1,609	1,091	10	377	397	48	153	401	4,086
Personnel number of management level 内管理職員（人）	79	84							

4 Financial System and Future Financial Management

The Tokyo Waterworks are operated as a local public enterprise, which is required to ensure its public nature and maintain economic efficiency. The waterworks uses the enterprises accounting system as its financial system. Additionally, the waterworks business is conducted on a self-supporting accounting system, and the expenses required are covered by the revenue from water charges. On another front, the construction projects are financed by enterprise loans as well as governmental subsidies and money transferred from general account.

The Tokyo Metropolitan Assembly has the authority to make decisions on the budget, approve account settlement, and make revisions to water charges (amendment of the ordinances).

Figure : Account Settlement for FY 2008 (Heisei 20)
図　平成20年度決算



Outline of the Tokyo Waterworks/東京都水道局の概要

During the high economic growth period and several years after the period from the 1960s to the first half of the 1980s, we raised the water charges almost every three years due to an increase in fixed expenses for facility expansion in response to a sharp increase in water demand and a sudden rise in commodity prices. Since the second half of the 1990s, our financial condition has been favorable due to stabilization of economic conditions and promotion of internal efforts.

However, at the end of FY 1993 (Heisei 5), the one-year balance as well as the accumulated balance were in the red due to an increase in facilities improvement costs and the increase in water treatment costs from deterioration in the quality of water resources.

For this reason, we tried to establish a firm financial base by preparing a four-year financial plan with the planned period from FY 1994 to 1997 (Heisei 6 to 9) in 1994 (Heisei 6) and by raising water charges to compensate for deficits after our best efforts at reducing costs. We reduced the charge level in January 2005 (Heisei 17) by executing sound financial management and making our best efforts after the plan.

To establish a highly reliable waterworks system and to deploy high quality waterworks services, we developed a three year plan from FY 2006 to 2009 (Heisei 18 to 21), the Tokyo Waterworks Management Plan 2007, in December 2006 (Heisei 18). In this plan, we will balance accumulated income and expenditures by the end of FY 2009 (Heisei 21) while maintaining the current charge level by reducing expenses and the securement of revenues.

5 Tokyo Waterworks Management Plan 2007

The Tokyo Waterworks Management Plan 2007 manifests the project plan and financial plan for measures that will be implemented for three years to achieve accountability to the citizens of Tokyo from the viewpoint of results management and emphasis on results.

(1) Planned period

Three years from FY 2007 (Heisei 19) to 2009 (Heisei 21)

(2) Management policy

The Tokyo Waterworks provides water services to our customers with a solid feeling of safety and stability while trying to achieve efficient management as one of the lifelines supporting the citizens of Tokyo and urban activities of the capital.

We are also promoting forward-looking efforts and handing over the traditions of the Tokyo Waterworks to the next generation.

(3) Main measures

a. Stable supply of safe, better tasting tap water in the future
b. Active development of customer services in response to needs
c. Strengthening of the management base, including the establishment of an efficient, responsible management structure
d. Expanding the integration area of waterworks management toward improving the stability of the water supply and the promotion of management efficiency
e. Promotion of a wide range of measures for the next generation

(4) Financial and project management structure

a. Fiscal income and expenditure plan as shown in the material on the next page
b. Management efforts as shown in the material on the next page
c. Project management structure

To responsibly and stably supply safe, better tasting tap water in the future while satisfying both the expectations of the public and the need for efficiency, an integrated management structure in which the Bureau of Waterworks and the administrative organizations are responsible for the essential affairs of waterworks projects will be established.

Additionally, as for the transfer of operations to the administrative organizations, the structure will be established by FY 2016 (Heisei 28) in the ward area based on the progress of facility improvement and by FY 2012 (Heisei 24) in the Tama area in time for the dissolution of the commission for office administration.

(5) Target management as shown in the material on page 16

Outline of Tokyo Waterworks Management Plan 2007
東京水道経営プラン2007の概要

(1) Fiscal income and expenditure plan　財政収支計画

(Unit: million yen)
(単位：百万円)

FY 年度		Income 収入 Charges 料金	Bond issues 起債	National subsidies 国庫補助金	Money transferred from general account 一般会計繰入金	Other その他	Total 計	Expenditures 支出 Operating cost 営業費用	Interest expenses 支払利息	Principal redemption money 元金償還金	Construction & improvement costs 建設改良費	Total 計	Income and expenditure over-and-under absorbed overhead 収支過不足額	Accumulated income and expenditure over-and-under absorbed overhead 累積収支過不足額 (Settled account of 2006 19年度末決算 1,610)
2007 19年度	Planned 計画	320,307	22,584	6,662	4,633	40,309	394,495	210,438	17,425	66,282 (△3,900)	99,918 (5,000)	394,063	432	1,964
	Settlement 決算	319,325	14,053	5,277	4,547	37,174	380,376	205,364	15,920	66,383 (△3,900)	92,143 (5,000)	379,810	566	2,176
	Difference 増減	△ 982	△ 8,531	△ 1,385	△ 86	△ 3,135	△ 14,119	△ 5,074	△ 1,505	101 (0)	△ 7,775 (0)	△ 14,253	134	212
2008 20年度	Planned 計画	321,327	12,644	6,560	4,797	40,187	385,515	216,726	16,072	53,353	100,856 (5,000)	387,007	△ 1,492	472
	Settlement 決算	313,947	8,942	4,865	4,063	39,735	371,552	210,942	13,947	53,326	92,740 (5,000)	370,955	597	2,773
	Difference 増減	△ 7,380	△ 3,702	△ 1,695	△ 734	△ 452	△ 13,963	△ 5,784	△ 2,125	△ 27	△ 8,116 (0)	△ 16,052	2,089	2,301
2009 21年度	Planned 計画	323,078	12,154	5,171	4,888	42,854	388,145	218,502	14,903	54,507	100,705 (5,000)	388,617	△ 472	0
	Budget 予算	322,094	11,643	4,912	6,425	44,233	389,307	217,698	13,253	54,484	105,105 (7,400)	390,540	△ 1,233	1,540
	Difference 増減	△ 984	△ 511	△ 259	1,537	1,379	1,162	△ 804	△ 1,650	△ 23	4,400 (2,400)	1,923	△ 761	1,540
Total 計	Planned 計画	964,712	47,382	18,393	14,318	123,350	1,168,155	645,666	48,400	174,142 (△3,900)	301,479 (15,000)	1,169,687	△ 1,532	0
	Expected 見込	955,366	34,639	15,054	15,035	121,142	1,141,235	634,004	43,120	174,193 (△3,900)	289,988 (17,400)	1,141,305	△ 70	1,540
	Difference 増減	△ 9,346	△ 12,744	△ 3,339	717	△ 2,208	△ 26,920	△ 11,662	△ 5,280	51	△ 11,491	△ 28,382	1,462	1,540

Note 1: Bond issues and principal redemption money do not include those refunded.
Note 2: Principal redemption money represents the amount after equalization due to the introduction of the one-time depreciation at maturity system for private bonds (The amounts in parentheses are the effect of equalization).
Note 3: Construction & improvement costs include the accumulated fund for the renewal of large purification plants and the accumulated fund for Okutama water supply facilities improvement (The amounts in parentheses are accumulated).

(注1) 起債及び元金償還金は、借換分を除いたものである。
(注2) 元金償還金は、民間債の満期一括償還制度導入に伴う平準化をした後の額である（括弧内は内書き）。
(注3) 建設改良費は、大規模浄水場更新積立金及び東多摩水道施設整備積立金を含めた額である（括弧内は内書き）。

(2) Management efforts　経営努力

(Unit: million yen)
(単位：百万円)

Item 事項	FY 2007 19年度 Planned 計画	Settlement 決算	Difference 増減	FY 2008 20年度 Planned 計画	Settlement 決算	Difference 増減	FY 2009 21年度 Planned 計画	Budget 予算	Difference 増減	Total 計 Planned 計画
Fundamental review of project management structure (Reduction of the regular number of staff) 事業運営体制の抜本的な見直し（職員定数の削減）	2,602 (250 person) (250人)	2,602 (250 person) (250人)	0 (0 person) (0人)	3,817 (150 person) (150人)	3,842 (150 person) (150人)	25 (0 person) (0人)	6,280 (250 person) (250人)	6,330 (250 person) (250人)	50 (0 person) (0人)	12,699 (650 person) (650人)
Reduction of existing expenditures 既定経費の節減	981	1,335	354	1,428	1,480	52	1,947	1,905	△ 42	4,356
Effective use of assets, etc. 資産の有効活用等	1,971	1,721	△ 250	479	1,797	1,318	2,495	1,863	△ 632	4,945
Total 計	5,554	5,658	104	5,724	7,119	1,395	10,722	10,098	△ 624	22,000

(3) Main project plan for facilities improvement　施設整備主要事業計画

(Unit: million yen)
(単位：百万円)

Project name 事業名		Project expense 事業費	Planned amount by FY 年度別計画額 FY 2007 19年度 Planned 計画	Settlement 決算	Difference 増減	FY 2008 20年度 Planned 計画	Settlement 決算	Difference 増減	FY 2009 21年度 Planned 計画	Budget 予算	Difference 増減
Water resources and purification plants improvement project 水源及び浄水施設整備事業		96,000	32,000	27,505	△ 4,495	32,000	24,888	△ 7,112	32,000	30,000	△ 2,000
Transmission/distribution facilities improvement project 送配水施設整備事業		157,000	52,000	57,118	5,118	52,000	59,598	7,598	53,000	54,000	1,000
Water supplying facilities improvement plan 給水設備整備事業		17,000	6,000	4,401	△ 1,599	6,000	4,852	△ 1,148	5,000	6,000	1,000
Total 計		270,000	90,000	89,024	△ 976	90,000	89,338	△ 662	90,000	90,000	0
Financial resources 財源	Enterprise bonds 企業債	47,382	22,584	14,053	△ 8,531	12,644	8,942	△ 3,702	12,154	11,643	△ 511
	National subsidies 国庫補助金	18,393	6,662	5,277	△ 1,385	6,560	4,865	△ 1,695	5,171	4,727	△ 444
	Money transferred from general account 一般会計繰入金	6,902	2,234	1,970	△ 264	2,334	1,520	△ 814	2,334	1,179	△ 1,155
	Other その他	197,323	58,520	67,724	9,204	68,462	74,011	5,549	70,341	72,451	2,110

(4) Promotion of results management　目標管理

○ Indexes related to management　経営に関する指標

Item 項目			FY 2007 19年度 Planned 計画	Result 実績	FY 2008 20年度 Planned 計画	Result 実績	FY 2009 21年度 Planned 計画
Efficiency of management 経営の効率性	Number of service connections per employee 職員一人当たり給水件数	(x 1000/employee) (千件/人)	1.5	1.5	1.5	1.6	1.7
	Total length of distribution pipes managed per employee 職員一人当たり配水管管理延長	(km/employee) (km/人)	5.6	5.6	5.8	5.8	6.2
	Accounted-for water per employee 職員一人当たり有収水量	(x 1000 m³/employee) (千m³/人)	337.9	334.4	350.6	341.4	374.2
	Water supply cost 給水原価	(yen/m³) (円/m³)	204.5	205.8	205.7	204.8	204.7
Strengthening of management base 経営基盤の強化	Rate of employee payroll 職員給与比率	(%)	8.0	7.9	8.1	7.9	7.7
	Balance in enterprise bonds 企業債残高	(x 100 million yen) (億円)	5,003	4,763	4,596	4,319	4,173
	Ratio of principal and interest redemption to revenue on water supply 給水収益に対する元利償還割合	(%)	27.2	27.0	21.4	21.4	21.3
	Ratio of owned capital to total capital 自己資本構成比率	(%)	73.5	72.5	75.7	73.9	77.9
Profitability 収益性	Ordinary balance ratio 経常収支比率	(%)	119.3	124.7	119.4	122.9	120.1

Note 1: All the index values are calculated based on the amounts including taxes.
Note 2: Water supply cost is calculated based on the fund that includes the capital expenditures in the total expenditures.
Note 3: Water supply cost, balance in enterprise bonds, and ratio of owned capital to total capital are calculated based on the amounts after equalization due to the introduction of the one-time depreciation at maturity system for private bonds.
Note 4: The calculation of ratio of principal and interest redemption to revenue on water supply does not include that of refinanced.

(注1) 指標値は、すべて税込みの額により算出している。
(注2) 給水原価は、総支出額の中に資本的支出額を含めた資金ベースで算出している。
(注3) 給水原価、企業債残高及び自己資本構成比率は、民間債の満期一括償還制度導入に伴う平準化をした後の額を基準として算出している。
(注4) 給水収益に対する元利償還割合は、借換分を除いたもので算出している。

○ Indexes related to facilities improvement　施設整備に関する指標

Item 項目			FY 2007 19年度 Result 実績	FY 2008 20年度 Result 実績	FY 2009 21年度 Planned 計画	(Achievement FY) (達成年次) Target 目標
Stable supply of water 安定給水	Rate of acquired water amount for stable water supply in a drought 渇水時における安定給水のための水源確保率	(%)	92	93	94	(FY 2011) (23年度) 100
	Rate of earthquake-resistant filter ろ過池耐震施設率	(%)	56	56	56	(FY 2016) (28年度) 90
	Rate of earthquake-resistant service reservoir 配水池耐震施設率	(%)	39	50	56	(FY 2016) (28年度) 95
	Rate of water supply capacity in power outage 停電時の給水確保率	(%)	88	88	93	(FY 2013) (25年度) 100
	Rate of the water supply in an accident 事故時の安定給水確保率	(%)	73	73	77	(FY 2016) (28年度) 85
	Rate of replacement of aged pipes 経年管の解消率	(%)	97	98	99	(FY 2013) (25年度) 100
	Rate of replacement of early ductile iron pipes 初期ダクタイル管の解消率	(%)	12	16	19	(FY 2016) (28年度) 55
	Rate of ductile iron pipe ダクタイル鋳鉄管率	(%)	99	99	99	(FY 2013) (25年度) 100
	Rate of earthquake-resistant joint of pipeline 管路の耐震継手率	(%)	23	24	26	(FY 2016) (28年度) 35
	Rate of earthquake-resistant joint in distribution route for major facilities 重要施設供給ルートにおける耐震継手率	(%)	23	27	38	(FY 2016) (28年度) 100
	Rate of earthquake-resistant large diameter service pipes 大口径給水管の耐震化率	(%)	69	72	78	(FY 2013) (25年度) 100
Supply of safe, better tasting tap water 安全でおいしい水の供給	Distribution rate of processed water by advanced water treatment system (Tone River system) 高度浄水処理率(利根川水系)	(%)	54	62	76	(FY 2013) (25年度) 100
	Achievement rate of residual chlorine decrease 残留塩素目標達成率	(%)	66	62	65	(FY 2013) (25年度) 100
	Achievement rate of trichloramine decrease トリクロラミン目標達成率	(%)	83	85	75	(FY 2013) (25年度) 100
Earthquake and water pollution countermeasures 地震・水質事故対策	Rate of water storage tank inspection 貯水槽点検率	(%)	61	(注) 73	–	(FY 2008) (20年度) 100
	Rate of direct water supply from distribution main 直結給水率	(%)	64	64	65	(FY 2016) (28年度) 70

(Note)The Bureau has given explanations regarding inspection to water storage tank owners; however inspection was not conducted for about 30% of tanks because no permission was granted.
(注) 当局では、貯水槽の設置者に対して、点検に関する説明を行ったが、承諾が得られないこと等により、約3割について点検を実施することができなかった。

Stable supply of safe, better tasting water/安全でおいしい水の安定的な供給

Table : Facilities of Tama River System
表　多摩川系施設

(1) Reservoirs　貯水池

Name 名称	Effective Storage Capacity 有効貯水量 (m³)	Catchment Area 流域面積 (km²)	Dams ダム			FY of Completion 完成年度
			Type 形式	Height 堤高 (m)	Length 堤頂長 (m)	
Ogouchi Reservoir 小河内貯水池	185,400,000	262.88	Gravity-type Concrete Dam 重力式コンクリートダム	149	353	1957 昭和32年度
Yamaguchi Reservoir 山口貯水池	19,528,000	7.18	Earth Dam アースダム	34	716	1934 昭和9年度
Murayama-kami Reservoir 村山上貯水池	2,983,000	1.34	〃	24	318	1924 大正13年度
Murayama-shimo Reservoir 村山下貯水池	11,843,000	2.01	〃	35	610	1927 昭和2年度

(2) Intake weirs　取水堰

Name 名称	Max. Intake Capacity 最大取水量 (m³/s)	Width 幅(m)	Type 型	No. of Gates 門数	FY of Completion 完成年度
Ozaku 小作	22.77	132.5	Movable Weir 可動堰	5	1980 昭和55年度
Hamura 羽村	22.20	380.0	Fixed Weir 固定堰	–	1900 明治33年度
			"Nagewatashi" Weir* 投渡堰	3	
Chofu 調布	2.04	103.6	Fixed Weir 固定堰	–	1936 昭和11年度
			Shuttle Weir 起伏堰	5	
			Movable Weir 可動堰	2	
			Lock 閘門	1	

* A "Nagewatashi" Weir is one of the traditional ways to intake water from a river.
*「投渡堰」は、河川から取水する伝統的な方法の一つである。

(3) Water conveyance channels　導水路

Name 名称	Structure 構造	Length 延長(m)	Managing Organization 管理	FY of Completion 完成年度
Musashi Water Conveyance Channel 武蔵水路	Open channel 開水路	14,522	JWA 独立行政法人 水資源機構	1968 昭和43年度
Asaka Water Conveyance Channel 朝霞水路	Closed conduit 暗きょ	2,294	JWA 独立行政法人 水資源機構	1965 昭和40年度 1981 昭和56年度 (Renewal) (改築)
Kita-chiba Water Conveyance Channel 北千葉導水路	Closed conduit 暗きょ Open channel 開水路	28,500	MLIT 国土交通省	1999 平成11年度
Saitama Goguchi Stage Ⅱ 埼玉合口二期	Streamlining of agricultural water 農業用水の合理化		JWA 独立行政法人 水資源機構	1994 平成6年度

3 Purification Facilities

Purification plants purify the raw water from rivers or reservoirs and transmit the treated water to the water supply stations. The Bureau of Waterworks has 11 main purification plants with a total capacity of about 6.86 million m^3 per day.

Table : Outline of the Facilities of the Purification Plants (As of March 2009 (Heisei 21))
表　浄水場（所）の施設概要（平成21年3月現在）

Water Resources 水源	Purification Plant 浄水場(所)	Plant Capacity (m^3/day) 施設能力(m^3/日)	Ratio(%) 割合 Purification Plant 浄水場(所)	Ratio(%) 割合 Drainage system 水系	Treatment Method 処理方式
Tonegawa/ Arakawa River Systems 利根川・荒川水系	Kanamachi 金町	1,500,000	21.9	79.9	Rapid sand filtration 急速ろ過 (Partially advanced water treatment 一部高度水処理 520,000m^3/day)
	Misato 三郷	1,100,000	16.0		(〃 550,000m^3/day)
	Asaka 朝霞	1,700,000	24.8		(〃 850,000m^3/day)
	Misono 三園	300,000	4.4		Rapid sand filtration 急速ろ過 Advanced water treatment 高度浄水処理 300,000m^3/day
	Higashi-murayama 東村山	880,000	18.4		Rapid sand filtration 急速ろ過 (Advanced Water treatment facilities are under construction) (高度浄水処理建設中)
		385,000		17.0	
Tama River System 多摩川水系	Ozaku 小作	280,000	4.1		Rapid sand filtration 急速ろ過
	Sakai 境	315,000	4.6		Slow sand filtration 緩速ろ過
	Kinuta 砧	114,500	1.7		Membrane filtration 膜ろ過 Slow sand filtration 緩速ろ過
	Kinutashimo 砧下	70,000	1.0		Membrane filtration 膜ろ過 Slow sand filtration 緩速ろ過
	Tamagawa 玉川	(152,500)*	–		Slow sand filtration 緩速ろ過 Rapid sand filtration 急速ろ過
Sagami River System 相模川水系	Nagasawa 長沢	200,000	2.9	2.9	Rapid sand filtration 急速ろ過
Ground Water 地下水	Suginami 杉並	15,000	0.2	0.2	Chlorine injection only 塩素注入のみ
TOTAL 合　計	計	6,859,500	100.0	100.0	–

* The Tamagawa purification plant is currently not in operation and is excluded from the production capacity.
* 玉川浄水場は、水道事業としては休止中であり、施設能力から除外している。

4 Water Supply Station and Transmission/Distribution Facilities

(1) Water supply station

The water supply stations are operated to control the transmission and distribution of water by adjusting the amount and pressure of water according to changes in demand.
Tokyo has 39 main water supply stations. The total capacity of the service reservoirs in the purification plants and water supply stations is about 3.11million m^3 as of the end of March 2009 (Heisei 21).

(2) Transmission/distribution facilities

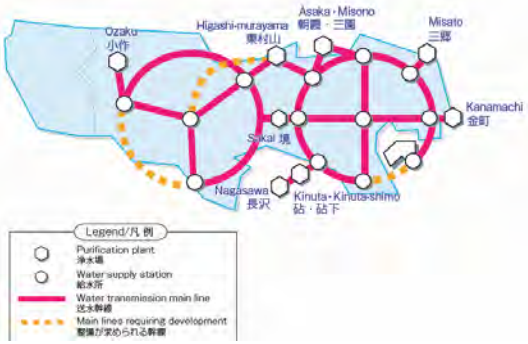
The transmission pipes that connect the purification plants and water supply stations or that connect the water supply stations and the distribution pipes laid down in a mesh pattern to maintain uniform water pressure and to assure stable water supply are mainly located under public roads.
The network of distribution pipes connects the purification plants and main water supply stations, and this enables flexible management of the water supply.
The distribution pipes consist of the distribution mains (with a bore diameter of 400 mm or larger) and small distribution pipes (with a bore diameter of from 50 to 350 mm) that branch out from the mains and directly connect to the service pipes, and the total length of the distribution pipes laid down is 25,823 km as of the end of March 2009 (Heisei 21).

5 Water Supply Control and Management

(1) Water Supply Operation Center

The facilities of the Bureau of Waterworks is a large-scale system consisting of the water intakes at 3 main river systems, 11 main purification plants, 39 main water supply stations and transmission/distribution piping network. Today, the backup system among the purification plants and water supply station is enhanced, and it is possible to share the transmission/distribution systems extensively.
The Water Supply Operation Center comprehensively manages this system.

Figure : Conceptual Diagram of Major Distribution Mains Development
図　送水幹線整備の概念図



Stable supply of safe, better tasting water/安全でおいしい水の安定的な供給

Table : Water Quality Target for Better Tasting Water
表　おいしさに関する水質目標

Item 項　目			Parties 監視項	Unit 単位	National Water Quality Standard etc. 国の定めた水質基準等	Objectives 設定する目標 Target Value 水質目標値	Objectives 設定する目標 Desired Sensory Quality 目標値の目安	Achievement rate in fiscal year 2008 平成20年度達成率
Odor におい	カルキ臭 Chlorine odor	Residual chlorine 残留塩素	○	mg/l	1.0 (MAX) 1.0以下 0.1 (MIN) 0.1以上	0.4(MAX) 0.4以下 0.1(MIN) 0.1以上	Most people don't sense the odor of the chlorine. (The smell of chlorine used for disinfection.) ほとんどの人が消毒用の塩素のにおい（カルキ臭の一種）を感じない	61.7%
		Trichloramine トリクロラミン	○	–	–	○	Most people don't sense the chlorine odor. ほとんどの人がカルキ臭を感じない	84.6%
	Threshold odor number (TON) 臭気強度			–	3 (MAX) 3以下	1 (No odor) (臭気なし)	People don't sense an offensive taste or odor (other than the chlorine odor). 異臭味（カルキ臭を除く）を感じない	100%
	かび臭物質 Musty odorant	2-Methylisoborneol 2-メチルイソボルネオール		ng/l	10 (MAX) 10以下	○	People don't sense a musty odor. かび臭を感じない	100%
		Geosmin ジェオスミン		ng/l	10 (MAX) 10以下	○		
Taste 味	Organic substances (Total Organic Carbon) 有機物質(TOC)		○	mg/l	5 (MAX) 5以下**	1 (MAX) 1以下	People don't sense an unpleasant taste. 不快な味を感じない	100%
Appearance 外観	Color 色　度			Degree 度	5 (MAX) 5以下	1 (MAX) 1以下	People don't notice the color and turbidity of the water. 色や濁りが分らない	100%
	Turbidity 濁　度			Degree 度	2 (MAX) 2以下	0.1 (MAX) 0.1以下		99.6%

* The chlorine odor is the odor of the chlorine (free chlorine) injected at the purification plants for disinfection and the odor that is generated by the reaction of the chlorine and the ammonium nitrogen, etc., in the water.
A standard value for the chlorine odor has not been established in the national water quality standard, etc.
** Since April 2009 (Heisei 21) the standard value has been reset as 3 (MAX).

4. Environmental measures

1 Environmental Basic Principle

Global-scale environmental problems, such as global warming, become more serious, and the conservation of the global environment is an urgent issue common to all humankind.
The Bureau of Waterworks established the Tokyo Waterworks Bureau Environmental Basic Principle in April 2000 (Heisei 12) to manifest the basic stance to the environmental problems of the bureau which aims to achieve a good balance of environmental conservation and business management.

2 Tokyo Waterworks Bureau Environmental Basic Plan

The Bureau of Waterworks established the Tokyo Waterworks Bureau Environmental Basic Plan (planned period: from FY 2005 (Heisei 17) to FY 2007 (Heisei 19)) and started its management in January 2005 (Heisei 17), which was our unique environmental management system focusing on the results of efforts by adopting the concept of ISO 14001.
Furthermore, we established the following plan, the Tokyo Waterworks Bureau Environmental Basic Plan (2007 – 2009) (planned period: from FY 2007 (Heisei 19) to FY 2009 (Heisei 21)) and started its management in March 2008 (Heisei 20). To realize the environmental basic principle, the Environmental Basic Plan (2007 – 2009) stipulates six environmental basic policies under the environmental basic principle and 40 concrete items to be addressed. We are addressing these items for further continuous improvement.
The three items that will be addressed intensively in particular have been selected as the priority objectives, while the long-term objective that will be addressed over a period longer than the planned period was also set.

5. Earthquake disaster measures

1 Enhancement of Earthquake Resistance of Facilities

Japan is one of the countries with frequent earthquakes, and the imminence of the epicentral earthquake at the capital area has been pointed out.

The Tokyo Waterworks Bureau has a role to support the lives of 13 million Tokyo citizens, urban activities, and central functions of the capital, and the securement of the water supply in the case of a large earthquake is very important.

Based on such situation, we strive to implement earthquake disaster measures to keep the interruption in supply to a minimum and to secure as much drinking water as possible in the event of a major earthquake.

In particular, the reinforcement of the reservoirs, purification plants, and water supply stations has been implemented to strengthen the earthquake resistance of our facilities.

Additionally, old pipes and early ductile iron pipes with low earthquake resistance that tend to be damaged in an earthquake are being replaced with earthquake-resistant joint pipes. Almost all the service pipes under public roads have been replaced with stainless steel pipes that have high earthquake resistance.

To enhance the backup function in an earthquake disaster, we are implementing the establishment of the transmission/distribution pipe network, new construction and improvement of water supply stations, and installation of private power generator facilities.

2 Establishment of Emergency Measures

The Bureau of Waterworks has established emergency measures by estimating the damage to facilities from an earthquake, preparing the Tokyo Waterworks Bureau Earthquake Disaster Emergency Plan for recovery; conducting training in information communication on regular basis; securing staff, materials, and vehicles for recovery; and improving the information collection and communication systems.

We have installed the water supply bases every 2 km to secure drinking water in preparation for a disaster. The drinking water secured at the water supply bases is equivalent to the amount that the citizens of Tokyo, about 13 million people, can use for about four weeks if the water needs of one person in a disaster are 3 liters per day.

The emergency water supply tanks that are dedicated for an earthquake disaster are connected to the distribution pipes and constantly store fresh water through circulation with pumps. The storage capacity of these tanks is 1,500 m^3 or 100 m^3.

6. Customer service

1 Service Operation

The Bureau of Waterworks has 7 branch offices and 23 service stations in the ward area to provide services to customers.

The branch offices administer the service stations in each area, handle emergency accidents, maintain distribution pipes, adjust water distribution, and work on water supply equipment. On the other hand, the service stations offer such services as answering inquiries, receiving various applications, and claiming water and sewerage charges.

For the 25 cities and towns in the Tama area under the unified waterworks management of the Metropolitan Government, two water supply management offices, twelve service stations, and the waterworks departments of the cities to which the Metropolitan Government entrusted office work provide these services.

Additionally, to respond to the reception of service start, service stop, repairs, and the various inquiries from customers, we established Customer Service Centers.

We have also introduced an on-line system to quickly respond to inquiries on charges, applications of the start/stop of service, etc.

Furthermore, we now also accept applications to start/stop service via the Internet from customers who live in the 23-ward area and the 25 cities and towns in the Tama area under the unified waterworks management of the Metropolitan Government.

2 Transition of Waterworks in Tokyo
(Ward area and 25 cities and towns under the unified waterworks management of the Metoropolitan Government)

2 東京の水道の推移（区部及び都営水道25市町）

Item 項目 \ Fiscal Year 年度		2006 18年度	2007 19年度	2008 20年度
Population of service area 給水区域内人口	(people) (人)	12,333,465	12,445,275	12,554,508
Population served 給水人口	(people) (人)	12,333,029	12,444,870	12,554,106
Pervasion rate 普及率	(%)	100.0	100.0	100.0
Number of service connections 給水件数	(case) (件)	6,614,112	6,736,242	6,831,308
Total length of distribution pipes 配水管延長	(km)	25,473	25,652	25,823
Capacity of facilities 施設能力	(m^3/day) (m^3/日)	6,859,500	6,859,500	6,859,500
Annual total distributed amount 年間総配水量	(1000m^3) (千m^3)	1,606,415	1,606,804	1,581,925
Max. distribution amount per day 一日最大配水量	(m^3)	4,947,000	4,872,300	4,824,000
Ave. distribution amount per day 一日平均配水量	(m^3)	4,401,100	4,390,200	4,334,000

(Note 1) The distribution amounts include the amounts of the divided water to the ununified cities.
(Note 2) The numbers of population of service area and population served in and after FY (Heisei 18) may be corrected based on the next national census.
(Note 3) The numbers of population of service area, population served, and number of service connections are as of October 1st 2008 (Heisei 20).

3 主要都市の水道

Item 項目 \ City 都市名		Tokyo 東京都	Sapporo 札幌市	Sendai 仙台市	Saitama さいたま市	Kawasaki 川崎市	Yokohama 横浜市
Population served 給水人口	(people) (人)	12,598,025	1,889,745	1,013,390	1,214,743	1,399,312	3,684,645
Total length of water conveyance/transmission/distribution pipes 導送配水管延長	(km)	26,487	5,683	3,558	3,395	2,488	9,197
Number of customers 給水戸数	(household) (戸)	6,867,592	879,042	452,659	542,530	647,184	1,742,076
Number of staff 職員数	(people) (人)	4,080	643	425	414	710	1,794
Capacity of water supply facilities 給水施設能力	(m^3/day) (m^3/日)	6,859,500	835,200	510,465	538,000	989,900	1,820,000
Max. distribution amount per day 一日最大配水量	(m^3)	4,824,000	611,460	382,387	409,270	522,100	1,309,300
Ave. distribution amount per day 一日平均配水量	(m^3)	4,334,000	523,600	336,800	374,700	481,400	1,192,200
Charges (household use 13mm,10m^3) 料金(家庭用 13mm 10m^3)	(yen, tax included) (円·税込)	965	1,386	1,449	1,302	756	919
Unit price of water supply (tax excluded) 供給単価（税抜）	(yen/m^3) (円/m^3)	197.94	217.28	210.12	218.03	153.07	177.60
Water supply cost (tax excluded) 給水原価（税抜）	(yen/m^3) (円/m^3)	180.21	214.00	223.14	213.26	165.99	183.64

(Note) According to the FY 2008 (Heisei 20) local public enterprise account settlement status investigation (MIC).
The unit price of water supply and water supply cost are calculated based on the water utility management index released by MIC.
Unit price of water supply = Revenue on water supply/Annual total revenue earning water
Water supply cost = [Current expense - (Entrusted construction cost + Cost of materials and disused articles sold + Incidental operation expense)]/Annual total revenue earning water

(注) 平成20年度地方公営企業決算の状況（総務省）調による。
供給単価及び給水原価は、総務省が発表している水道事業経営指標に基づき算出したものである。
供給単価＝給水収益÷年間総有収水量
給水原価＝｛経常費用－（受託工事費＋材料及び不用品売却原価＋附帯事業費）｝÷年間総有収水量

Chronological table

1590	Ieyasu Tokugawa ordered Tougoro Okubo to select the location for a Josui (clear water channel) (Kanda Josui was partially completed).
1654	Completion of Tamagawa Josui
1898	Operation of the Yodobashi Purification Plant was started.
1923	The waterworks facilities were significantly damaged by the Great Kanto Earthquake.
1926	Completion of the Kanamachi Purification Plant
1934	Completion of the Yamaguchi Reservoir
1938	Construction of the Ogouchi Dam was started
1945	The waterworks facilities were devastated by World War II.
1957	Completion of the Ogouchi Dam (Tama River system)
1959	Operation of the Nagasawa Purification Plant was started.
1960	Operation of the Higashi-murayama Purification Plant was started.
1964	The great drought of the Tama River system occurred and the water supply was limited by up to 50%.
1965	The Yodobashi Purification Plant was abolished due to the Shinjuku subcenter plan.
1966	Operation of the Asaka Purification Plant was started.
1967	Completion of the Yagisawa Dam (Tone River system)
1968	Completion of the Shimokubo Dam (Tone River system)
	Completion of the Tone Weir and the Musashi Channel
1970	Operation of the Ozaku Purification Plant was started.
	Intake of the Tamagawa Purification Plant was stopped.
1971	Completion of the Tone River Estuary Weir
1975	Operation of the Misono Purification Plant was started.
1976	Completion of the Kusaki Dam (Tone River system)
1985	Operation of the Misato Purification Plant was started.
1990	Completion of Watarase Reservoir
1991	Completion of the Naramata Dam (Tone River system)
1992	Completion of the first phase advanced water treatment facilities of the Kanamachi Purification Plant
	Completion of the Tama River cold water handling facilities
1995	Operation of the waterfront subcenter waterworks facilities was started.
1996	Completion of the second phase advanced water treatment facilities of the Kanamachi Purification Plant
1998	Completion of the Urayama Dam
1999	Completion of the first phase advanced water treatment facilities of the Misato Purification Plant
2004	Completion of the first phase advanced water treatment facilities of the Asaka Purification Plant
2007	Completion of the advanced water treatment facilities of the Misono Purification Plant

3. Case: Orange Country Water District

Orange County Water District
Finance Department
P.O. Box 8300
Fountain Valley, CA 92728
Phone: 714-378-3200
Fax: 714-378-3373
www.ocwd.com

3. Case: Orange Country Water District

- Water District is a sort of water authority or water supply public company
- Monopoly for provide water supply in the region, in most case
- But introduce commercial accounting system and manage with financial and political independency
- Operation is managed by General Manager under supervised by Board of Directors

3. Case: Orange Country Water District

- Sorry again as this case is also not sufficient for your WUSC, but I only have this case for Water District in USA.
- Please care their system is quite different with your WUSC. They sold water for irrigation too. I just want you to understand general concept of annual report.
- Again, I do not including full report.

ORANGE COUNTY WATER DISTRICT

Comprehensive Annual Financial Report

for the fiscal year ended June 30, 2010

Fountain Valley, California

LETTER OF TRANSMITTAL

October 20, 2010

To the Board of Directors of the Orange County Water District:

It is our pleasure to submit the Comprehensive Annual Financial Report of the Orange County Water District (District) for the fiscal year ended June 30, 2010 and 2009. District staff worked collectively and followed guidelines set forth by the Governmental Accounting Standards Board to prepare this report. This document, which contains a complete set of basic financial statements, is presented in conformity with generally accepted accounting principles (GAAP) and audited by Diehl, Evans & Company LLP, a firm of licensed certified public accountants, in accordance with generally accepted auditing standards. State law requires that all special-purpose local governments publish these basic financial statements within six months of the close of the agency's fiscal year.

Management assumes full responsibility for the completeness and reliability of the information contained in this report. To provide a reasonable basis for making these representations, the District has established a comprehensive framework of internal controls. The District's internal controls have been designed to provide appropriate assurance that the basic financial statements will be free from material misstatements.

The goal of the independent audit was to provide reasonable assurance and not the absolute assurance that the basic financial statements of the District for the fiscal year ended June 30, 2010 were free of material misstatement. The independent audit involved examining the District's records on test basis, disclosures in the basic financial statements, assessing the accounting principles used, estimates made by the management, and evaluating the overall financial statement presentation. The independent auditors rendered an unqualified opinion that the District's basic financial statements for the fiscal year ended June 30, 2010 are presented fairly in conformity with GAAP.

The Letter of Transmittal is designed to complement the Management Discussion and Analysis (MD&A), which follows the Independent Auditor's Report and provides an overview and analysis of the basic financial statements. This letter should be read in conjunction with the MD&A.

ORANGE COUNTY WATER DISTRICT

TABLE OF CONTENTS

June 30, 2010 and 2009

AGENCY PROFILE

The District was formed in 1933 by a special act of the California State Legislature to protect Orange County's rights to water in the Santa Ana River. The District's primary responsibility is managing the vast groundwater basin under northern and central Orange County that supplies water to 21 cities (Producers), serving more than 2.4 million Orange County residents. The District gives highest priority to protection, safety and enhancement of groundwater.

A ten member Board of Directors (Board), seven of whom are elected officials, govern the District. The other three Directors are appointed by the city councils of Anaheim, Fullerton and Santa Ana. The District currently has 217 employees overseeing day-to-day activities at the direction of the General Manager.

The District Act provides for local financing of the District's operations by a combination of ad valorem taxes and water use assessments. It empowers the District to levy and collect a replenishment assessment (RA) on water extracted from the groundwater basin. These monies are used to purchase supplemental water for groundwater recharge; to construct, operate and maintain water production facilities; to acquire water rights and spreading facilities to replenish and protect the groundwater supply of the District; and for administrative purposes.

The Board also sets an annual basin equity assessment (BEA) that generally represents the differential cost between pumping groundwater and purchasing imported water. Producers annually pay the BEA on each acre-foot in excess of the basin production percentage (BPP) established by the Board.

The District primarily recharges the groundwater basin with Santa Ana River flows, Groundwater Replenishment System (GWRS) water and to a lesser extent with imported water purchased from the Metropolitan Water District of Southern California (MWD). The Santa Ana River flows are essentially free to the District, less the expense to capture and percolate the water, resulting in groundwater that costs about a third of the water imported from Northern California and the Colorado River. Valued at about $120 million every year, the Santa Ana River flows are percolated into deep groundwater aquifers through spreading basins in Anaheim and Orange. By naturally filtering the water through the ground, the District saves ratepayers millions of dollars each year in water treatment costs. The District also holds surplus imported water owned and used by the MWD in its basin, which helps improve water reliability for all of Southern California.

The groundwater basin provides about two-thirds of all water used within the District's service area. With one of the most sophisticated groundwater protection programs in the country, the District uses more than 650 (owned and non-owned) wells providing more than 1,300 sampling points from which the District takes more than 20,000 water samples and conducts around 400,000 laboratory analyses every year.

The District's monitoring program looks for more than 500 contaminants, which is more than the required 144 target contaminants by health agencies.

The District currently holds rights to all Santa Ana River flows reaching Prado Dam in Riverside County (the dam is owned by the U.S. Army Corps of Engineers for flood prevention). The District owns 2,150 acres behind the dam that it used for water conservation, water quality improvement and environmental enhancement. The District saves approximately $31.9 million a year by collecting storm water behind Prado Dam, which is recharged into the basin instead of being discharged to the ocean.

The District operates the world's largest wastewater purification facility of its kind, called the Groundwater Replenishment System (GWRS). The GWRS takes highly treated sewer water destined for the ocean, purifies it to near-distilled quality, and puts it back into the groundwater basin and the District's seawater intrusion barrier. The GWRS, a joint project of the District and the Orange County Sanitation District (OCSD), produces high-quality water for about the same cost of imported water, but uses less energy than is required to import water from Northern California.

Additional efforts to increase local water supplies include expanding the capacity of the existing percolation facilities, treating poor quality water to make it useable, studying methods to extend the life of water treatment filtration membranes, improving advanced purification technologies, and studying the quality of Santa Ana River water and other water-related issues. Other District activities focus on expanding the Prado wetlands, groundwater treatment at well heads, computer modeling of the groundwater basin and conservation of endangered or threatened species.

The District continues to adopt strategies to ensure that sufficient water supplies will be available in the future to replenish, protect and maximize the use of the groundwater basin. Ensuring water quality continues to be a top priority for the District; extra effort is extended in the area of monitoring water quality and regular cleanup, striving to improve coastal conditions, along with sound financial choices to minimize the costs of projects. Those extra efforts are summarized in the items listed below:

Maintaining and Improving Water Quality

Drinking water in California is among the most highly regulated and safest in the world. Operating for more than two years now, the GWRS brings Orange County's water quality to a higher level. The District conducts monitoring programs on behalf of the local water retailers to meet monitoring requirements implemented by the California Department of Health Services and the U.S. Environmental Protection Agency.

The District also implements additional monitoring programs for the purpose of groundwater management. These programs are designed to give the District an advance warning of potential problems so corrective action can be taken to protect northern and central Orange County's water supply before there is a problem.

The District's organic and inorganic laboratory provides real value to local water retailers by testing all groundwater to ensure public health. The District has always maintained a proactive policy toward water quality.

Improving Coastal Conditions

Production from the basin requires coastal mitigation measures. The District has implemented various capital projects to improve coastal conditions. The District's two main objectives are to ensure high quality coastal groundwater supplies and to protect the coastal aquifer subunits from seawater intrusion through expansion of the seawater barrier.

Using the Safest and Most Cost-Effective Financing Option

The District has traditionally and successfully used long-term debt financing in the form of Certificates of Participation and State Loans to pay for capital projects that have increased water production, removed pockets of contamination, increased producer pumping capacity, increased the capture of Santa Ana River flows, and prevented seawater intrusion. The District is always seeking ways to minimize capital project costs.

ECONOMIC CONDITION AND OUTLOOK

The District's service boundary covers virtually the entire northern half of Orange County. More than 2.4 million Orange County residents rely on the District for about two-thirds of their water needs. Orange County is one of the major metropolitan areas in California and the nation representing the third most populous county in the state, and fifth in the nation. Population growth is about 1.0% annually.

Orange County's economy has slowed in the past year and it is expected to remain slow for the next year. Local and statewide unemployment has gone up compared to last year. The local unemployment rate in June 2010 was 9.5% versus 12.3% for California and 9.5% for the nation. The California State Budget has not passed. Although the precise implementation of the state budget is unclear at this time, the District is assuming no cuts in the ad valorem property tax revenues for the upcoming Fiscal Year 2010-11.

During the water year 2009-10, the District replenished approximately 309,700 acre-feet (af) of water. This groundwater replenishment consisted of 161,700 af of Santa Ana River flows and 65,900 af created by GWRS water. Several thousand acre-feet were also injected into the Talbert and Alamitos seawater barriers. Other water sources include natural replenishment from rainfall that provided an estimated 60,000 af of additional water, non-local recharge 20,500 af, and MWD water for Talbert and Alamitos barrier was 1,600 af.

Groundwater use in Orange County in 2009-10 was approximately 285,600 af, or 93 billion gallons during the water year. Groundwater met 68% of the water demand within District boundaries. There are challenges ahead in meeting future water demand, but with continued investment in cost-effective capital improvement projects, the District is confident that the groundwater basin can stay ahead of demand and continue to provide a reliable, high-quality water supply.

MAJOR INITIATIVES FOR THE FUTURE

Advanced Water Quality Assurance Laboratory

The construction and occupation of the District's new Advanced Water Quality Assurance Laboratory was completed in October 2009. The laboratory houses the equipment and personnel needed to test and ensure the quality of replenishment water and groundwater. Benefits of the District's water quality testing for its retail water agencies include quality control, consistency of testing and ease of reporting water quality data to state and other regulatory agencies.

Over the years, state and federal regulations for contaminants have gone from parts per million, to parts per billion, to parts per trillion, and the District's state-certified water quality laboratory has been at the forefront of developing testing methods to detect possible new contaminants at the lowest possible levels. The District's organic and inorganic laboratory provides real value to local water retailers by testing all groundwater to ensure public health. The District also has a zero-tolerance policy with polluters, pursuing litigation when necessary.

The new facility replaced a 32-year-old building and several portable trailers that the District had outgrown. Expanding and rehabilitating the old laboratory to meet seismic and other safety requirements would have been more costly than building a new facility that is needed to meet current and future water quality testing requirements. The new laboratory incorporates green building practices including the use of locally manufactured materials with recycled components and low emissions of volatile organic compounds, recycled water for onsite landscape irrigation and use of highly energy efficient HVAC (heating, ventilating and air conditioning) equipment. Additionally, key design strategies from LABS 21 (a federal government program to promote better laboratory design) were incorporated into the design

The two-story steel framed building houses chemists and lab technicians, water quality monitoring personnel and all the equipment needed to conduct more than 350,000 analyses of approximately 18,000 water samples taken each year. The District's new advanced water quality laboratory also supports the water quality testing requirements for the GWRS.

District is Planning the Following Projects to Begin in Fiscal 2010-2011:

The District's combined projects will provide regional, statewide and national benefits. The GWRS is an effective response to meeting the federal mandate to decrease California's dependency on imported waters from the Colorado River and the Sacramento-San Joaquin River Delta (the "Delta") by creating a "new" source of water. The current method of moving water through the Delta to the pumps of the California State Water Project is in jeopardy due to recent environmental rulings. GWRS diminishes the region's reliance on uncertain imported water supplies

In addition to creating a reliable water source, GWRS creates new wastewater treatment capacity, reducing the amount of outfall during storms to the Pacific Ocean, preserving the country's vital coast, and provides all these benefits with fewer gas emissions than when importing water from the California State Water Project.

Planning for the Future: Groundwater Replenishment System Expansion

The GWRS was designed and built to be easily expanded. With the completion of Orange County Sanitation District's Steve Anderson Lift Station in May 2009, the GWRS is receiving more feed water. Now that the GWRS is operating at full capacity of 70 million gallons per day (MGD), the District initiated the design phase for its first expansion in summer 2010. The GWRS is a modular system, so the expansion will minimally interrupt normal operations. Once completed, Phase II will increase production capacity by 30 million gallons per day (MGD) from our current capacity of 70 MGD to 100 MGD. The facility is expandable to 130 MGD, however expansion from 100 MGD to 130 MGD will not occur for several years.

Research & Hydrogeology

Five Coves and Lincoln Basins Bypass Pipeline Project

Santa Ana River (SAR) flows are diverted into the Upper Five Coves Basin by an inflatable dam. A transfer structure conveys surface flows from the Upper Five Coves Basin to the Lower Five Coves Basin.

Under the current configuration, the Five Coves and Lincoln Basins operate as a flow through system requiring that water diverted from the SAR pass sequentially through Upper Five Coves, Lower Five Coves and Lincoln Basins before reaching Burris Basin. A bypass pipeline is proposed to be constructed within the Lower and Upper Five Coves, and Lincoln and Burris basins that would allow independent control of water into the four basins. This proposed pipeline would allow the Upper Five Coves, Lower Five Coves and Lincoln basin to be isolated and taken out of service to conduct basin cleaning operations while maintaining the flow of water to Burris and Santiago basins (located downstream of Lincoln Basin).

Santiago Basins Pump Station Rehabilitation

The proposed Santiago Basins Pump station is designed to dewater the Santiago Basins to increase storage capacity, capture an additional 5,000 af per year of storm flow and provide operational flexibility to pump water to other recharge facilities when necessary. The existing pump station cannot empty the lower half of Santiago Basins as the original design intended due to the failure of two large pumps. In order to restore the District's ability to empty the basins, a new pump station has been proposed in order to dewater the entire basin. When Santiago Basins are full, storm water can no longer be captured for recharge purposes and should another storm occur, water would be lost to Pacific Ocean. The District is making every effort to capture as much storm water as possible. The pump station will also be used to empty Santiago Basins in non-storm season so that 5,000 af of additional local storm water can be captured.

Fletcher Basin Rehabilitation

Fletcher Basin is owned by Orange County Flood Control Division (OCFCD) and was formerly used to impede storm water flow prior to discharge into the Santa Ana River. Currently, the site is used to dispose of excess soils. The rehabilitation project would convert Fletcher Basin into a recharge basin and make improvements to enhance flood control. This project would include excavating the basin of excess soils; cleaning, hauling and disposing of soils; construction of an influent pipeline and inlet/outlet structure into the basin; construction of a low-flow channel to route nuisance water directly to the Fletcher Channel; installation of a sump pump to evacuate the water into Fletcher Channel in the event of a forecasted storm or for cleaning and construction of improvements to Fletcher Channel (concrete vertical walls) downstream from Fletcher Basin.

Mid-Basin Injection Demonstration Project

The Mid-Basin Injection Demonstration Project will construct one fully operational mid-basin injection facility and then via subsequent testing activities, provide the additional information necessary for the regulatory permitting and engineering design of a potential future full-scale, multi-well injection project. Water from the GWRS will be injected through the well. The project is a necessary first step to support the engineering design and permitting of the future, full-scale, multi-well project.

The project would involve the construction and subsequent testing of one fully operational injection well and two monitoring wells in the Principal aquifer, associated pipelines and site improvements. These proposed facilities would be located in the vicinity of an existing turnout along the GWRS pipeline, specifically in the city of Fountain Valley on property owned by the OCFCD. The facilities would be operated as normal recharge facilities and subsequently integrated into the larger full-scale project.

North Basin Groundwater Protection Project

The North Basin Groundwater Protection Project will remediate contaminated groundwater in an approximately 11 square mile area in the cities of Fullerton, Anaheim and Placentia, where groundwater is contaminated with volatile organic compounds (VOCs). Groundwater contamination originating in the shallow aquifer is migrating both laterally and vertically threatening the aquifer and production wells operated by the affected cities. The project involves the drilling of monitoring, extraction and injection wells; constructing conveyance pipelines; constructing a plant to treat contaminated groundwater; and reinjection of the treated water back into the groundwater basin.

Natural Resources & Prado Wetlands

The District implemented an ongoing award-winning environmental program that also provides water benefits. As part of its agreement to store water behind Prado Dam, the District carries out environmental enhancements that have greatly increased the number of the least Bell's vireo, a California songbird. Once an endangered bird; in the early 1980s there were only 18 breeding pairs behind Prado Dam. Today there are more than 900 pairs in the Santa Ana River watershed. The District also has a program to remove a water guzzling, invasive perennial cane called *Arundo donax* from the watershed. Each year, the District saves more than $1 million in water costs by removing Arundo and restoring natural vegetation.

As part of the Burris and Lincoln Basins Reconfiguration Projects, the District created a Habitat Management Plan and received approval from all necessary agencies including the U.S. Fish and Wildlife Service, Army Corps of Engineers, California Department of Fish and Game and the State Water Resources Control Board. Burris Basin is home to special status colonial nesting shorebirds such as the California Least Tern, Forester Tern and the Black Skimmer. These shorebirds make nests in the sandbar islands of the basin. The Burris and Lincoln Reconfiguration Projects would interfere with the 2009 nesting season. To mitigate the loss of sandbar habitat during this season, the District installed a 3,500 square foot temporary floating island at the southern end of Burris Basin. The temporary island is anchored off-shore until a new permanent sandbar island is constructed.

The temporary island floats approximately one-foot above the water surface. A series of mesh ramps are attached to the island to help fledglings access the water when learning to swim. The temporary island and the recently cleared Marsh Island will greatly offset the loss of sandbar habitat during the 2009 nesting season. During this time, the District is closely monitoring the bird population and breeding behavior on the temporary island.

Long- Term Facilities Plan

The District is working cooperatively with the local groundwater producers to develop a long-term facilities plan to guide the development of future capital projects. The Long-Term Facilities Plan (LTFP) is a planning tool for the District that identifies potential projects that could increase the basin's yield and protect groundwater quality.

Water Conservation Program

The District is dedicated to the creation, promotion and management of water education and conservation programs throughout Orange County. Each year, District staff gives more than 120 presentations to community leaders and groups and conducts more than 250 tours to over 4,000 guests. The goal of the O.C. Family Water Conservation Program is to draw families' attention to the state's water needs and crisis, teach them useful and simple ways to reduce water consumption and respect this natural resource, and have them make life-long commitments to conserving water.

The components that comprise the O.C. Family Water Conservation Program are:

Children's Water Education Festival
The Children's Water Education Festival is the largest event of its kind in the nation, serving more than 6,000 elementary school students every year. Thanks to more than 300 volunteers and the support of Disneyland Resort Environmental Affairs, the Festival will celebrate its 15th anniversary in March 2011. This two-day event brings the classroom outdoors and teaches children about water resources, recycling, pollution prevention, wetland preservation and other environmental topics through interactive and hands-on activities. Over the past 14 years, the Festival has educated more than 88,000 students, teachers and parents. This educational field trip is widely sought after by educators.

O.C. Water Summit
The O.C. Water Summit teaches individuals, business, community and civic leaders where our water comes from, and provides information about the water supply crisis and water quality challenges we face. The event educates the public on what temporary measures are in place to address these issues as well as possible solutions to water reliability and preserving the Sacramento-San Joaquin River Delta, California's main source of water.

A collaborative effort between businesses, water agencies and local governments, the Summit provides a platform for individuals in the community to work with water utilities and legislators on creating and implementing solutions that will see Orange County through future water challenges. Topics for each Summit are determined according to the water climate each year.

O.C. Water Hero Program
The O.C. Water Hero program makes water conservation a family-friendly activity by helping children and parents develop effective water-use efficiency habits that will last a lifetime. The goal of the program is to raise awareness of the need to conserve water and motivate county residents to reduce their water consumption by 20 gallons per day, per person. When a child signs up to commit to saving 20 gallons of water a day, they receive a letter confirming their Water Hero status along with a Water Hero Kit that includes a Water Hero badge, Water Waster "Fix It Ticket" pad, conservation stickers, a five-minute shower timer, activity pages based on California state teaching standards and a water saving pledge card for parents to sign and return. When the Water Hero's parent pledges to save 20 gallons of water a day too, then the child becomes a Water Superhero. Superheroes receive a certificate, indoor/outdoor water saving tips and a t-shirt. Since its inception in 2007, more than 13,000 Water Heroes and Superheroes have enrolled in the program.

Water 101
O.C. Water 101 is a free water education class offered to residents and colleges. The class focuses on the global water crisis, how water affects health, California's unique water situation, what the future holds for water supplies in Orange County and what water agencies are doing to help conserve available water resources. The class also includes discussions on high-tech solutions to help alleviate water shortages today and in the future, as well as provides individuals with the resources and information necessary to save water.

Hotel/Motel Water Conservation Program
The District maintains a water conservation effort designed specifically for hotels and motels in Orange County. At no cost, hotels and motels can order laminated towel rack hangers, bed cards or combination cards that encourage guests to consider using their towels and bed linens more than once. The cards, which gently ask guests to be environmentally aware, help hotels and motels save water and ultimately money. More than 230 hotels are currently enrolled in the program. Orange County has many tourist destinations, most notably the Disney parks and resorts. These cards encourage visitors to protect local water supplies.

Facility Tours

The District offers public tours of the GWRS, the world's largest indirect potable water recycling facility. Throughout the tour, participants learn about the dire water situation and the need for large-scale water reuse projects as well as individual water conservation. In addition, the District offers bi-annual tours of its groundwater recharge facilities and wetlands behind Prado Dam. Guests learn about Orange County's current and future water supplies. Since opening in Spring 2008, the GWRS has hosted over 10,000 visitors from around the globe.

SERVICE EFFORTS AND ACCOMPLISHMENTS

The District has received numerous awards for its service efforts and accomplishments in recent years. The District is known globally for its leadership and innovation. Its work on water quality and reliability, the environment, and sound financial management has been recognized by local and international organizations. The following list of awards is representative of the acclaim and recognition bestowed on the District and the GWRS from 2006 through June 2010.

2010:

- The United States Fish & Wildlife Service (USFW) recognized OCWD's Natural Resources Director Richard Zembal with the Services 2009 Recovery Champion Award, one of only 18 awarded nationally. The Recovery Champion award recognizes USFW employees and their partners for contributions to the recovery of threatened and endangered species in the United States. (March 2010)
- The Government Finance Officers Association (GFOA) recognized OCWD with the Certificate of Achievement for Excellence in Financial Reporting (CAFR) Program for superb financial accountability and reporting of its fiscal year that ended June 30, 2009. The CAFR Program is GFOA's highest form of recognition in the area of governmental accounting and financial reporting. (April 2010)

2009:

- The United States EPA recognized District with its 2008 Clean Water State Revolving Fund "PISCES" Award, which showcases projects that advance clean and safe water through exceptional planning, management and financing. (January 2009)
- American Council of Engineering Companies (ACEC) "Golden State" Award of Excellence, the highest California award offered by ACEC. (February 2009)
- District received the Green California Leadership Award, Water Management for its efforts managing sparse water supplies in Southern California. (March 2009)

- The Orange County Water and Sanitation Districts were awarded the American Society of Civil Engineers (ASCE) Outstanding Civil Engineering Achievement for the year's most outstanding national engineering project in recognition of the Groundwater Replenishment System. (April 2009)
- The Orange County Water and Sanitation Districts were awarded the American Council of Engineering Companies (ACEC) Grand Conceptor Award signifying the year's best engineering achievement among the 168 national projects honored by the ACEC in recognition of the Groundwater Replenishment System. (April 2009)

2008:

- International Water Association (IWA) Honor Award in the category of Design Projects. This global recognition is part of the IWA Project Innovation Program for Excellence in Innovative Water Engineering. (July 2008)
- Stockholm 2008 Industry Water Award for pioneering work to develop the Groundwater Replenishment System, presented to the Orange County Water District and Orange County Sanitation District. (June 2008)
- Special Recognition for Environmental Achievement for the GWRS from the State of California Senate, sponsored by Senator Tom Harman. (May 2008)
- Award of Distinction, Water Project of the Year, presented by Global Water Intelligence. (May 2008)
- Special Recognition for Environmental Excellence, presented by the Orange County League of Conservation Voters, presented to District and OCSD for the GWRS. (May 2008)
- Clair A. Hill Award, presented by the Association of California Water Agencies (ACWA). The District is the first agency to receive this prestigious award more than once. The District previously received the Clair A. Hill for the Children's Water Education Festival. (May 2008)
- Special Congressional Recognition for Environmental Achievement of the GWRS, presented by the U.S. House of Representatives, sponsored by Congress Member Loretta Sanchez (D, CA). (May 2008)
- Commendation for Environmental Achievement from the City of Huntington Beach for recognition of the GWRS from the Orange County League of Conservation Voters. (April 2008)
- Large Agency of the Year, presented by WateReuse Association, California Section. (March 2008)

- Resolution commending District for the GWRS, presented by the Metropolitan Water District of Southern California (MWD). (February 2008)
- Engineering Project of the Year, presented by the Orange County Engineering Council for the GWRS. (February 2008)
- Project of the Year awarded by the American Society of Civil Engineers, Orange County Branch in recognition of the GWRS. (February 2008)

2007:

- Outstanding Member Award presented by the American Membrane Technology Association (AMTA). (July 2007)
- Protos Award from the Orange County Chapter of the Public Relations Society of America for "Editorial Article for a Trade Publication." The article was written for "Pollution Engineering" magazine about the GWRS. (June 2007)
- Award of Excellence awarded by the Orange County Chapter of the Public Relations Society of America for multicultural outreach for the GWRS. (June 2007)

2006:

- 2006 Project of the Year Award in the water/wastewater category awarded to the Orange County Water District (District) and Irvine Ranch Water District (IRWD) for the Irvine Desalter Project (IDP), by the American Public Works Association (APWA). (December 2006)
- District was recognized by the Association of California Water Agencies Joint Powers Insurance Authority's (ACWA/JPIA) for achieving a low ratio of paid worker compensation claims and reserves to our deposit premium for the period 07/01/02 to 06/30/05.
- Silver Anvil Award, the nation's highest PR award from the Public Relations Society of America (PRSA). (June 2006)
- Protos Award, awarded by the Orange County Chapter of the Public Relations Society of America (OCPRSA). (June 2006)
- "Client of the Year" awarded by the by the Orange County Chapter of the Consulting Engineers and Land Surveyors of California (CELSOC). (May 2006)

FINANCIAL INFORMATION

Accounting and Budgetary Controls

The District maintains its accounting records on an accrual basis. A great deal of consideration is given to the adequacy of internal accounting controls in developing and evaluating the District's accounting system. Internal accounting controls are designed to provide reasonable assurance regarding: (1) the safeguard of District assets against theft or unauthorized use; and (2) the reliability of financial records for preparing financial statements and maintaining accountability of assets. The concept of reasonable assurance recognizes that the cost of control should not exceed the benefits likely to be derived and it requires management's estimates and judgment in evaluation of costs and benefits.

The District's Board of Directors adopts an annual appropriated budget prior to June 30 each fiscal year. The budget includes proposed expenses by department (function) and the means of financing them. Budgetary controls and evaluation are affected by comparisons of actual revenue and expenses with planned revenues and expenses for the period. The Board approves total budgeted appropriations and any amendments to the appropriations throughout the year. The District has adopted a Uniform Purchasing Policy that identifies agreed- upon purchasing standards.

Cash Management

The majority of the District's cash reserves are invested in AAA-rated Federal agency bonds, repurchase agreements, fully insured certificates of deposits, investment pools and commercial paper in accordance with the District's investment policy.

For the fiscal year ended 2010, the District's Finance Department maintained and invested both restricted and unrestricted fund balances within fixed income securities in compliance with California Government Code Section 53600. Since the monies need to be available upon demand, the District's investment portfolio consists of securities with a life on demand to five years. The goal this fiscal year was to continue to retain the safety and liquidity of investment principal while earning a satisfactory yield.

The investment of the District's bond proceeds are subject to more restrictive covenants as defined in the permitted investment section in bond issuance documents. These funds are subject to arbitrage regulations, and annual arbitrage liability calculations are performed on these investments.

Debt Management

The District's debt mainly consists of Certificate of Participation (COP), state loans and commercial paper. The District has executed, in total, 13 Certificate of Participation issuances since 1989. Only four Certificate of Participation are outstanding (2003A, 2003B, 2005B & 2009A) as of June 30, 2010. Other COP's are either advanced refunded, defeased or refinanced with the help of the State loans and current COP.

The District has a letter of credit financing agreement supporting a commercial paper program with Bayerische Landesbank Girozentrale, a banking corporation organized under the laws of Germany, acting through its New York Branch. The District has credit capacity of $45 million to meet its future financing needs. As of June 30, 2010 the District has $15 million of commercial paper outstanding.

The District has a AAA rating from Fitch and Standard & Poor's and a Aa1 from Moody's based on the District's long-term credit quality. The ratings mean the District is one of the highest rated water agencies in the State of California. Maintaining a high rating saves the District and local water rate payers millions of dollars by allowing the District to borrow money more easily and at lower rates.

The high ratings reflect great confidence in the District's general and fiscal management and its leadership in the water industry. It bears truth to the District's competitive wholesale water rates, particularly in comparison to alternative water supply options; good debt service coverage; and the District's ability to address Southern California's long-term water supply problems with new water projects like the GWRS.

Risk Management

The District self-insures against liability and property losses in a pooled arrangement through the Association of California Water Agencies Joint Powers Insurance Authority (ACWA/JPIA). Three pooled programs provide coverage for (1) general and automobile liability, including errors and omissions and personal injury, (2) property losses, and (3) workers' compensation and employers' liability. Other exposures, such as fiduciary liability, crime coverage, employee fidelity and faithful performance are covered under programs from ACWA/JPIA. Group and executive business travel, are covered by insurance policies from another carrier.

The District minimizes its losses by requiring vendors, contractors, permittees, lessees, consultants and other organizations to insure against losses and agree to strict indemnification processes arising out of work with the District. Other loss control activities include the District's Safety Program which is committed to providing a safe work environment and preventing injuries to employees. Administered by the District's Risk & Safety Department, the key elements of this program include general safety responsibilities, recordkeeping, emergency procedures, safe work practices, inspections, training, reporting, and an emergency preparedness plan.

OTHER INFORMATION

Independent Audit: The District policy, as well as sound financial practice, requires an annual audit of financial records and transactions of all operations of the District by independent certified public accountants selected by the Board of Directors. The accounting firm of Diehl, Evans & Company, L.L.P., was selected to perform the (2009-1010)audit. The auditor's opinion is included in this report.

Awards: The Government Finance Officers Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Orange County Water District for its comprehensive annual financial report (CAFR) for the fiscal year ended June 30, 2009. In order to be awarded a Certificate of Achievement, a governmental unit must publish an easily readable and efficiently organized CAFR, whose contents conform to program standards. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year. We believe our current CAFR continues to meet the Certificate of Achievement requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

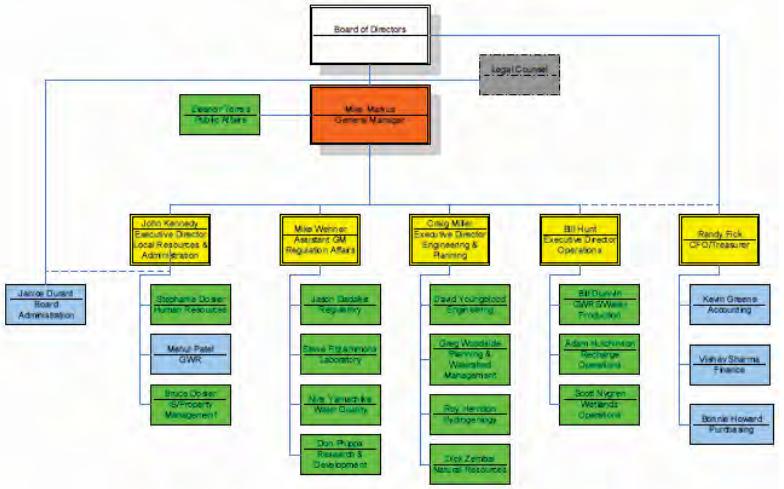
Acknowledgements: The preparation of a comprehensive annual financial report on a timely basis is a large task, made possible only by the combined efforts of many persons. Employees of the Finance Department deserve special recognition. Without their efforts, the completion of this report would not have been possible. We would also like to thank and recognize the members of the Board of Directors, the General Manager, and especially the Administration and Finance Committee members for their continued support in the planning and implementation of the District's fiscal policies.

Respectfully submitted,

Michael R. Markus
General Manager

Randy Fick
Chief Financial Officer/Treasurer

OCWD Organizational Structure



Orange County Water District
Comprehensive Annual Financial Report
Fiscal Year 2009-10

Board of Directors

Kathryn Barr, President, Service Area 1

Denis Bilodeau, Service Area 2

Roger C. Yoh, Service Area 3

Philip Anthony, 1st Vice President, Service Area 4

Stephen Sheldon, Service Area 5

Noble Waite, Service Area 6

Jan Debay, 2nd Vice President, Service Area 7

Claudia Alvarez, Service Area 8

Irv Pickler, Service Area 9

Don Bankhead, Service Area 10

♦ ♦ ♦ ♦ ♦ ♦ ♦

Michael R. Markus, P.E.
General Manager

ORANGE COUNTY WATER DISTRICT

DISTRICT VITAL STATISTICS

Date of Enactment:	1933
Form of Government:	Special District of the State of California
Area (square miles):	358
Employees (full-time):	217

Major Groundwater Producing Agencies:

Anaheim, City of	Mesa Consolidated Water District
Buena Park, City of	Newport Beach, City of
East Orange County Water District	Orange, City of
Fountain Valley, City of	Santa Ana, City of
Fullerton, City of	Seal Beach, City of
Garden Grove, City of	Serrano Water District
Golden State Water Company	Tustin, City of
Huntington Beach, City of	Westminster, City of
Irvine Ranch Water District	Yorba Linda Water District
La Palma, City of	

DIEHL, EVANS & COMPANY, LLP
CERTIFIED PUBLIC ACCOUNTANTS & CONSULTANTS
A PARTNERSHIP INCLUDING ACCOUNTANCY CORPORATIONS

5 CORPORATE PARK, SUITE 100
IRVINE, CALIFORNIA 92606-5165
(949) 399-0600 • FAX (949) 399-0610
www.diehlevans.com

September 10, 2010

INDEPENDENT AUDITORS' REPORT

Board of Directors
Orange County Water District
Fountain Valley, California

We have audited the basic financial statements of the Orange County Water District as of and for the years ended June 30, 2010 and 2009 as listed in the table of contents. These basic financial statements are the responsibility of the District's management. Our responsibility is to express an opinion on these basic financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards issued by the Comptroller General of the United States, and the State Controller's Minimum Audit Requirements for California Special Districts. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinions.

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the financial position of Orange County Water District at June 30, 2010 and 2009 and the results of its operations and cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America, as well as the accounting systems prescribed by the State Controller's Office and State regulations governing Special Districts.

As described in Notes 1p and 7 to the basic financial statements, the District adopted the provisions of Governmental Accounting Standards Board Statement No. 53, "Accounting and Financial Reporting for Derivative Instruments", for the year ended June 30, 2010.

OTHER OFFICES AT:
2965 ROOSEVELT STREET, CARLSBAD, CALIFORNIA 92008-2389
613 W. VALLEY PARKWAY, SUITE 330, ESCONDIDO, CALIFORNIA 92025-2598

In accordance with Government Auditing Standards, we have also issued our report dated September 10, 2010 on our consideration of the District's internal control over financial reporting and our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with Government Auditing Standards and should be considered in assessing the results of our audit.

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other post-employment benefit plan - schedule of funding progress, as identified in the accompanying table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during the audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Our audits were conducted for the purpose of forming an opinion on the District's basic financial statements as a whole. The Introductory Section and Statistical Section are presented for purposes of additional analysis and are not a required part of the basic financial statements. The Introductory Section and Statistical Section have not been subjected to the auditing procedures applied in the audits of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Diehl, Evans and Company, LLP

For the year ended June 30, 2010

The following summary analysis is a brief discussion of the Orange County Water District's (District) performance that provides an overview of the District's financial activities for the year ended June 30, 2010. It has been prepared by District staff, and should be read in conjunction with the financial statements and the notes to the financial statements, which follow this analysis.

FINANCIAL HIGHLIGHTS

Financial highlights for fiscal year ended June 30, 2010:

- The District's net assets decreased by $3,363,001, or 0.87% as compared to the prior year. The reason for this decrease is that water demand decreased 9.43% and a capital contribution was made to the Orange County Sanitation District. The District's operating and non-operating activities resulted in a decrease in net assets of $2,356,244 and the District's net capital contributions resulted in a decrease of $1,006,757 for its capital projects.
- Total revenues from all sources decreased by $5,788,434 or 5.01% from the prior year, primarily due to decreased water demands and other non-operating revenues. During the fiscal year, the District set its basin pumping percentage at 62% as compared to 69% in the prior year resulting in lower water sales.
- Total expenses from all sources increased by $4,852,764 or 4.52% as compared to the prior year, primarily due to the increased operations cost of running the Groundwater Replenishment System (GWRS) plant at higher volume. Also, the District refinanced part of its variable rate debt to fixed rate debt, which resulted in higher interest costs as compared to the prior year.

OVERVIEW OF THE FINANCIAL STATEMENTS

The District operates as a utility enterprise and presents its financial statements using the full accrual basis of accounting. The basic financial statements of the District consist of the Statement of Net Assets, the Statement of Revenues, Expenses, and Changes in Net Assets, and the Statement of Cash Flows. The Statement of Net Assets includes all of the District's assets and liabilities and provides information about the nature and amounts of investments in resources (assets) and the obligations to creditors (liabilities). It also provides the basis for computing the rate of return, evaluating the capital structure of the District, and assessing the liquidity and financial flexibility of the District.

The Statement of Revenues, Expenses, and Changes in Net Assets provides information on the District's operations and can be used to determine whether the District has recovered all of its costs through its operating and non-operating revenues. This statement can be used to determine the District credit worthiness.

For the year ended June 30, 2010

OVERVIEW OF THE FINANCIAL STATEMENTS (CONTINUED)

The Statement of Cash Flows provides information regarding the District's cash receipts and cash payments and changes in cash resulting from operations, investments and financing activities. The basic financial statements are prepared using accrual basis of accounting and include notes that explain in more detail information included in the financial statements.

FINANCIAL ANALYSIS OF THE DISTRICT

Our analysis of the District begins on page 11 of the Financial Statements. One of the most important questions asked about the District's finances is "Is the District as a whole better off or worse off as a result of the year's activities?" The Statement of Net Assets, and the Statement of Revenues, Expenses and Changes in Net Assets report information about the District's activities in a way that will help answer this question. These two statements report the net assets of the District and changes in them. You can think of the District's net assets - the difference between assets and liabilities - as one way to measure financial health or financial position. Over time, increases or decreases in the District's net assets are one indicator of whether its financial health is improving or deteriorating. However, you will need to consider other non-financial factors such as changes in economic conditions, new or changed government legislation, population growth, and zoning.

NET ASSETS

Fiscal year 2010 and 2009:

- The District's net assets at June 30, 2010 totaled $381,981,170 compared with $385,344,171 at June 30, 2009. A significant portion of the decrease in the District's net assets can be attributed to capital contributions made to the Orange County Sanitation District and various water producers/cities. The District's operational and non-operational activities resulted in a decrease in net assets of $2,356,244 and the District received capital contributions of $1,896,385 from various Federal, State and local agencies towards its capital program. The District made capital contributions of $2,903,142 to the Orange County Sanitation District and various water producers. The following is a summary of the District's Statement of Net Assets:

For the year ended June 30, 2010

FINANCIAL ANALYSIS OF THE DISTRICT (CONTINUED)

Condensed Statements of Net Assets

	June 30, 2010	June 30, 2009	Dollar Change 2010 v 2009	June 30, 2008	Dollar Change 2009 v 2008
Assets:					
Current Assets	$ 263,940,752	$ 243,758,045	$ 20,182,707	$ 219,952,343	$ 23,805,702
Non-current Assets:					
Capital Assets	617,250,267	621,599,593	(4,349,326)	649,499,052	(27,899,459)
Other Non-current Assets	24,658,137	25,332,872	(674,735)	13,549,766	11,783,106
Total Assets	905,849,156	890,690,510	15,158,646	883,001,161	7,689,349
Liabilities:					
Current Liabilities	38,130,328	26,187,409	11,942,919	23,244,869	2,942,540
Non-current Liabilities:					
Long-term Debt	468,391,370	466,017,035	2,374,335	469,595,174	(3,578,139)
Other Long -term Liabilities	17,346,288	13,141,895	4,204,393	2,451,848	10,690,047
Total Liabilities	523,867,986	505,346,339	18,521,647	495,291,891	10,054,448
Net Assets:					
Invested in Capital Assets, Net of Related Debt	177,799,272	190,127,275	(12,328,003)	219,850,233	(29,722,958)
Restricted	(1,299,167)	466,011	(1,765,178)	2,438,010	(1,971,999)
Unrestricted	205,481,065	194,750,885	10,730,180	165,421,027	29,329,858
Total Net Assets	$ 381,981,170	$ 385,344,171	$ (3,363,001)	$ 387,709,270	$ (2,365,099)

For the year ended June 30, 2010

FINANCIAL ANALYSIS OF THE DISTRICT (CONTINUED)

The District reported a decrease in net assets of $3,363,001 for the year ended June 30, 2010 as compared to a decrease of $2,365,099 for the year ended June 30, 2009. The change between the periods is due to the decrease in water demand; increase in water production cost and capital contributions made to other agencies. The following is a summary:

Condensed Statements of Revenues, Expenses and Changes in Net Assets

	Year Ended June 30, 2010	Year Ended June 30, 2009	Dollar Change 2010 v 2009	Year Ended June 30, 2008	Dollar Change 2009 v 2008
Revenues:					
Operating Revenues					
Replenishment assessment	$ 71,682,764	$ 79,167,471	$(7,484,707)	$ 87,541,655	$(8,374,184)
Basin equity assessment	2,292,388	852,787	1,439,601	961,516	(108,729)
Reclaimed water revenues	9,819,094	7,811,421	2,007,673	3,166,589	4,644,832
Non-operating Revenues	25,981,063	27,732,064	(1,751,001)	30,555,915	(2,823,851)
Total Revenues	109,775,309	115,563,743	(5,788,434)	122,225,675	(6,661,932)
Expenses:					
Operating expenses	96,157,265	94,488,673	1,668,592	64,258,149	30,230,524
Non-operating Expenses	15,974,288	12,790,116	3,184,172	11,596,084	1,194,032
Total Expenses	112,131,553	107,278,789	4,852,764	75,854,233	31,424,556
Income (Loss) before Capital Contributions	(2,356,244)	8,284,954	(10,641,198)	46,371,442	(38,086,488)
Capital Contributions	1,896,385	6,417,475	(4,521,090)	21,781,469	(15,363,994)
Capital Contributions-out	(2,903,142)	(17,067,528)	14,164,386	-	(17,067,528)
Change in Net Assets	(3,363,001)	(2,365,099)	(997,902)	68,152,911	(70,518,010)
Beginning Net Assets	385,344,171	387,709,270	(2,365,099)	319,556,359	68,152,911
Ending Net Assets	$381,981,170	$385,344,171	$(3,363,001)	$387,709,270	$(2,365,099)

CAPITAL ASSETS

At June 30, 2010, the District had invested $882,322,065 in capital assets, including land, water rights, structures and improvements, equipment and construction-in-progress. Capital asset additions totaled $59,517,780 made during the fiscal year ended June 30, 2010 and capital additions totaled $33,287,780 for the fiscal year ended June 30, 2009. The main reasons for these large additions to capital assets were the completion of the main laboratory building and purchase of land for future water basin in fiscal year ending 2010.

Equipment of $331,711 and structures and improvements worth $180,000 were retired during the year ended June 30, 2010 compared to $195,830 worth of equipment retired during the year ended June 30, 2009. The following is a summary of the capital assets at June 30, 2010, June 30, 2009, and June 30, 2008 respectively:

Capital Assets

	June 30, 2010	June 30, 2009	Total Dollar Change 2010 v 2009	June 30, 2008	Total Dollar Change 2009 v 2008
Land	$ 31,412,307	$ 31,385,847	$ 26,460	$ 31,359,847	$ 26,000
Water Rights	6,823,570	6,823,570	-	6,823,570	-
Structures and Improvements	640,030,009	611,300,093	28,729,916	604,660,889	6,639,204
Infrastructure	60,864,792	60,621,219	243,573	57,580,173	3,041,046
Equipment	111,880,846	110,516,398	1,364,448	109,404,710	1,111,688
Construction in Progress	31,310,541	33,544,978	(2,234,437)	39,845,740	(6,300,762)
Subtotal	882,322,065	854,192,105	28,129,960	849,674,929	4,517,176
Less: Accumulated depreciation	(265,071,798)	(232,592,512)	(32,479,286)	(200,175,877)	(32,416,635)
Net Capital Assets	$ 617,250,267	$621,599,593	$ (4,349,326)	$649,499,052	$(27,899,459)

	Total Additions June 30, 2010	Total Additions June 30, 2009
Land and Easements	$ 26,460	$ 26,000
Structures and Improvements	28,909,916	6,639,204
Infrastructure	243,573	3,041,046
Equipment	1,696,139	1,307,318
Construction in Progress	28,641,672	22,774,012
Total	$59,517,780	$33,287,780

Additional information can be found in Note 4 of the notes to financial statements.

DEBT ADMINISTRATION

At June 30, 2010 the District had $491,540,832 in total debt as compared to $474,459,302 at the fiscal year ended June 30, 2009. It includes loans from the State of California, commercial paper and installment purchase agreements associated with the certificates of participation. This amount represents a net increase of $17,081,530 from the prior year. This increase is due to the new commercial paper loan for the purchase of land and refinancing of part of variable rate debt to fixed rate debt.

The following is a summary of the long-term debt at June 30, 2010 and June 30, 2009 and June 30, 2008 respectively:

Long-Term Debt

	June 30, 2010	June 30, 2009	Total Dollar Change 2010 v 2009	June 30, 2008	Total Dollar Change 2009 v 2008
Certificates of Participation	$351,597,368	$341,627,148	$ 9,970,220	$344,702,736	$ (3,075,588)
State of California loans payable	124,893,464	131,382,154	(6,488,690)	133,965,158	(2,583,004)
Commercial Paper	15,050,000	1,450,000	13,600,000	1,450,000	-
Total	$491,540,832	$474,459,302	$ 17,081,530	$480,117,894	$ (5,658,592)

The District has received the following ratings from the three major credit rating agencies:

Fitch Ratings: AAA
Moody's: Aa1
Standard and Poor's: AAA

Additional information can be found in Note 6 of the notes to financial statements.

ECONOMIC FACTORS AND NEXT YEAR'S BUDGET AND RATES

The Board of Directors has approved the budget for the fiscal year 2010-11. The budgeted operating expenses total $74.5 million which includes a net water budget of $13.0 million and includes purchasing 9,000 acre-feet (AF) of Metropolitan Water District of Southern California (MWD) replenishment water, assuming it is available. The annual budget also includes $29.1 million for debt service and $9.7 million for R&R fund expenditure and reserves.

The Board maintained the Replenishment Assessment at $249/af.

A multi-year construction-in-progress (CIP) budget of $45.8 million was adopted. These CIP projects will be funded by the District's CIP/restricted funds.

The whole financial market is going through tough economic times and the District like other cities and local governments is facing the same challenge. Orange County's economy has slowed in the past year and it is expected to be slow for the next year. The State of California has not adopted its current year budget. The County's unemployment rate in June 2010 was 9.5% versus 12.3% for California and 9.5% for the nation.

CONTACTING THE DISTRICT'S FINANCIAL MANAGEMENT

This financial report is designed to provide our citizens, customers, investors, and creditors with a general overview of the District's finances and to demonstrate the District's accountability for the money it receives. If you have questions about this report or need additional financial information, contact the Finance department, at the Orange County Water District, 18700 Ward Street, Fountain Valley, CA, 92708.

ASSETS	2010	2009
CURRENT ASSETS:		
UNRESTRICTED ASSETS:		
Cash and cash equivalents	$ 31,106,676	$ 41,390,424
Investments	140,063,618	108,141,730
Accounts receivables	35,367,281	41,513,499
Taxes receivable	579,771	940,291
Accrued interest receivable	578,505	1,181,609
Inventory	2,249,959	1,783,704
Prepaid expenses	590,804	605,770
Current portion of notes receivable	736,258	1,155,560
TOTAL UNRESTRICTED ASSETS	211,272,872	196,712,587
RESTRICTED ASSETS:		
Cash and cash equivalents	7,892,210	9,799,156
Investments	44,594,489	35,517,573
Accrued interest and other receivable	64,808	390,747
Custodial cash and investments	116,373	1,337,982
TOTAL RESTRICTED ASSETS	52,667,880	47,045,458
TOTAL CURRENT ASSETS	263,940,752	243,758,045
NONCURRENT ASSETS:		
CAPITAL ASSETS:		
Capital assets, not depreciated	69,546,418	71,754,395
Capital assets, depreciated, net	547,703,849	549,845,198
TOTAL CAPITAL ASSETS	617,250,267	621,599,593
OTHER NONCURRENT ASSETS:		
Due from other governments	1,625,060	5,575,327
Notes receivable, less current portion above	7,974,372	8,710,630
Other post-employment benefits (OPEB) asset	231,655	231,655
Bond issuance costs, net of amortization	1,022,516	1,114,606
Deferred asset from derivative instruments	13,804,534	9,700,654
TOTAL OTHER NONCURRENT ASSETS	24,658,137	25,332,872
TOTAL NONCURRENT ASSETS	641,908,404	646,932,465
TOTAL ASSETS	905,849,156	890,690,510

LIABILITIES AND NET ASSETS	2010	2009
LIABILITIES:		
CURRENT LIABILITIES:		
PAYABLE FROM UNRESTRICTED CURRENT ASSETS:		
Accounts payable and accrued expenses	7,403,246	10,763,457
Accrued interest payable	5,360,487	3,090,957
Deposits	39,247	39,247
Current portion of compensated absences	300,676	259,018
Current portion of long-term debt	23,149,462	8,442,267
TOTAL PAYABLE FROM UNRESTRICTED CURRENT ASSETS	36,253,118	22,594,946
PAYABLE FROM RESTRICTED ASSETS:		
Accounts payable and accrued expenses	1,334,280	2,153,550
Retentions payable	424,057	100,931
Custodial liability	118,873	1,337,982
TOTAL PAYABLE FROM RESTRICTED ASSETS	1,877,210	3,592,463
TOTAL CURRENT LIABILITIES	38,130,328	26,187,409
NONCURRENT LIABILITIES:		
LONG-TERM DEBT:		
Certificates of participation	351,597,368	341,627,148
State of California loans payable	124,893,464	131,382,154
Commercial paper	15,050,000	1,450,000
Subtotal	491,540,832	474,459,302
Less: current portion above	23,149,462	8,442,267
TOTAL LONG-TERM DEBT	468,391,370	466,017,035
OTHER NONCURRENT LIABILITIES:		
Accrued compensated absences	3,541,754	3,441,241
Liability from derivative instrument	13,804,534	9,700,654
TOTAL OTHER NONCURRENT LIABILITIES	17,346,288	13,141,895
TOTAL NONCURRENT LIABILITIES	485,737,658	479,158,930
TOTAL LIABILITIES	523,867,986	505,346,339
NET ASSETS:		
Invested in capital assets, net of related debt	177,799,272	190,127,275
Restricted for capital projects and debt services	(1,299,167)	466,011
Unrestricted	205,481,065	194,750,885
TOTAL NET ASSETS	$ 381,981,170	$ 385,344,171

	2010	2009
OPERATING REVENUES:		
Replenishment assessments	$ 71,682,764	$ 79,167,471
Basin equity assessments	2,292,388	852,787
Reclaimed water revenue	9,819,094	7,811,421
TOTAL OPERATING REVENUES	83,794,246	87,831,679
OPERATING EXPENSES:		
Water purchases	10,892,330	12,945,102
Water production	39,258,964	34,345,252
Depreciation and amortization	32,878,812	32,651,566
General and administrative	11,762,284	13,268,928
Replacement and/or refurbishment	1,364,875	1,277,825
TOTAL OPERATING EXPENSES	96,157,265	94,488,673
OPERATING LOSS	(12,363,019)	(6,656,994)
NONOPERATING REVENUES (EXPENSES):		
Property taxes	18,733,001	19,180,183
Investment income	5,023,504	6,372,643
Rental income, net of expenses	1,093,508	1,124,566
Other nonoperating revenues	1,131,050	1,054,672
Interest expense	(15,974,288)	(12,790,116)
TOTAL NONOPERATING REVENUES (EXPENSES)	10,006,775	14,941,948
NET INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS AND SPECIAL ITEM	(2,356,244)	8,284,954
CAPITAL CONTRIBUTIONS FROM OTHER PARTIES	1,896,385	6,417,475
CAPITAL CONTRIBUTIONS TO OTHER PARTIES	(2,903,142)	-
SPECIAL ITEM (NOTE 4)	-	(17,067,528)
CHANGES IN NET ASSETS	(3,363,001)	(2,365,099)
NET ASSETS - BEGINNING OF YEAR	385,344,171	387,709,270
NET ASSETS - END OF YEAR	$ 381,981,170	$ 385,344,171

ORANGE COUNTY WATER DISTRICT

STATEMENTS OF CASH FLOWS

For the years ended June 30, 2010 and 2009

	2010	2009
CASH FLOWS FROM OPERATING ACTIVITIES:		
Cash received from customers	$ 93,890,731	$ 85,359,553
Cash payments to suppliers for goods and services	(48,235,777)	(38,259,186)
Cash payments to employees for services	(19,208,149)	(18,111,510)
NET CASH PROVIDED BY OPERATING ACTIVITIES	26,446,805	28,988,857
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES:		
Cash received for property taxes	19,093,521	19,250,251
Other revenues	1,285,334	1,025,663
NET CASH PROVIDED BY NONCAPITAL FINANCING ACTIVITIES	20,378,855	20,275,914
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES:		
Payments received from notes receivable	1,155,560	1,484,594
Acquisition and construction of capital assets	(28,641,671)	(21,780,536)
Proceeds from sale of capital assets	-	33,296
Proceeds from certificates of participation	130,694,772	-
Certificates of participation issue costs	(209,024)	(34,000)
Proceeds from loans payable	13,600,000	3,781,926
Principal paid on long-term debt	(8,193,691)	(9,769,929)
Payments made to refunding escrow agent	(119,080,000)	-
Interest paid on long-term debt	(13,385,294)	(12,508,722)
Payments received from capital contributions	1,896,385	6,417,475
Payments made for capital contributions	(2,903,142)	-
NET CASH USED BY CAPITAL AND RELATED FINANCING ACTIVITIES	(25,066,105)	(32,375,896)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Investment purchases	(455,995,213)	(238,610,066)
Proceeds from sale of investments	414,996,409	180,600,000
Interest on investments	5,955,047	6,339,995
Rental income	1,093,508	1,124,566
NET CASH USED BY INVESTING ACTIVITIES	(33,950,249)	(50,545,505)
NET DECREASE IN CASH AND CASH EQUIVALENTS	(12,190,694)	(33,656,630)
CASH AND CASH EQUIVALENTS - BEGINNING OF YEAR	51,189,580	84,846,210
CASH AND CASH EQUIVALENTS - END OF YEAR	$ 38,998,886	$ 51,189,580

See independent auditors' report and notes to basic financial statements. (Continued)

ORANGE COUNTY WATER DISTRICT

STATEMENTS OF CASH FLOWS (CONTINUED)

For the years ended June 30, 2010 and 2009

	2010	2009
RECONCILIATION OF OPERATING LOSS TO NET CASH PROVIDED BY OPERATING ACTIVITIES:		
Operating loss	$ (12,363,019)	$ (6,656,994)
Adjustment to reconcile operating loss to net cash provided by operating activities:		
Depreciation and amortization	33,878,812	33,651,588
Change in assets and liabilities:		
(Increase) decrease in accounts receivables	8,148,218	900,430
(Increase) decrease in inventory	(488,255)	(714,483)
(Increase) decrease in prepaid expenses	14,888	(72,031)
(Increase) decrease in deposits	-	(582)
(Increase) decrease in due from other governments	3,850,287	(3,171,004)
(Increase) decrease in other post-employment benefits (OPEB) asset	-	(231,855)
Increase (decrease) in accounts payable and accrued expenses	(4,179,481)	5,153,503
Increase (decrease) in retentions payable	333,138	87,124
Increase (decrease) in accrued compensated absences	142,171	1,003,803
Total Adjustments	38,809,824	35,645,851
NET CASH PROVIDED BY OPERATING ACTIVITIES	$ 26,446,805	$ 28,988,857
CASH AND CASH EQUIVALENTS - FINANCIAL STATEMENT CLASSIFICATION:		
Current assets	$ 31,108,876	$ 41,380,424
Restricted assets	7,883,310	9,799,156
TOTAL CASH AND CASH EQUIVALENTS - FINANCIAL STATEMENT CLASSIFICATION	$ 38,998,886	$ 51,189,580
NONCASH INVESTING, CAPITAL AND FINANCING ACTIVITIES:		
Amortization related to long-term debt	$ 319,461	$ 329,412

See independent auditors' report and notes to basic financial statements.

ORANGE COUNTY WATER DISTRICT

NOTES TO BASIC FINANCIAL STATEMENTS

June 30, 2010 and 2009

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

a. Organization and Description of the District:

The Orange County Water District (the District) was formed by a special act of the California State Legislature in 1933. The District was formed because of the heavy overdraft of the Orange County groundwater supply and excessive diversion of the Santa Ana River by users upstream from the County of Orange. The major functions of the District are the management of the Orange County groundwater basin, the conservation of the basin groundwater and the protection of Orange County's water rights in the natural flows of the Santa Ana River. The legal boundaries of the District lie wholly within the County of Orange, California. Administration and operation of the District is conducted through a Board of Directors representing ten divisions, with seven being duly elected at large and three appointed.

The criteria used in determining the scope of the reporting entity are based on the provisions of GASB Statement 14. The District is the primary government unit. Component units are those entities which are financially accountable to the primary government, either because the District appoints a voting majority or the component unit's board, or because the component unit will provide a financial benefit or impose a financial burden on the District.

The District's reporting entity includes the Orange County Water District Public Facilities Corporation (the Public Facilities Corporation). Although the District and the Public Facilities Corporation are legally separate entities, the District's Board of Directors is financially responsible for the Public Facilities Corporation and, therefore, the accompanying financial statements include the accounts and records of the Public Facilities Corporation using the blending method as required by accounting principles generally accepted in the United States of America. There are no separate financial statements for the Public Facilities Corporation.

b. Basic Financial Statements:

The basic financial statements are comprised of the Statement of Net Assets, the Statement of Revenues, Expenses and Changes in Net Assets, the Statement of Cash Flows and the notes to the basic financial statements.

c. Measurement Focus and Basis of Accounting:

Measurement focus is a term used to describe "which" transactions are recorded within the various financial statements. Basis of accounting refers to "when" transactions are recorded regardless of the measurement focus applied. The accompanying financial statements are reported using the economic resources measurement focus, and the accrual basis of accounting. Under the economic measurement focus all assets and liabilities (whether current or noncurrent) associated with these activities are included on the Statement of Net Assets. The Statement of Revenues, Expenses and Changes in Net Assets present increases (revenues) and decreases (expenses) in total net assets. Under the accrual basis of accounting, revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

See independent auditors' report.

ORANGE COUNTY WATER DISTRICT

DESCRIPTION OF STATISTICAL SECTION CONTENTS

June 30, 2010

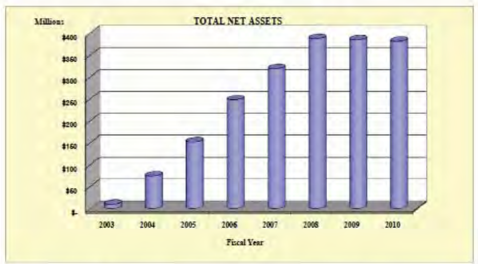
This part of the District's comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial statements and the note disclosures say about the government's overall financial health.

Contents: Pages

Orange County Water District

Net Assets by Component
Last Eight Fiscal Years

Fiscal Year		Invested in Capital Assets Net of Related Debt	Restricted	Unrestricted	Total Net Assets
2003	(1,2)	$ (95,398,589)	$ -	$ 105,636,821	$ 10,238,232
2004		(55,804,377)	-	130,543,193	74,738,816
2005		41,967,773	-	110,995,810	152,963,583
2006		147,855,980	-	100,602,678	248,458,658
2007		192,018,083	-	127,538,276	319,556,359
2008		219,850,233	2,438,010	165,421,027	387,709,270
2009		190,127,275	466,011	194,750,885	385,344,171
2010		177,799,272	(1,299,167)	205,481,065	381,981,170



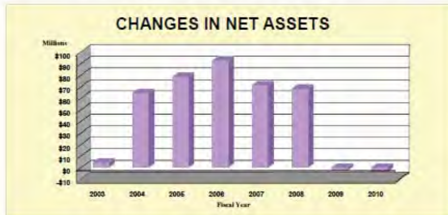
(1) As recommended by GASB 44, this schedule provides data retroactively to the year GASB 34 was implemented. The District implemented GASB 34 in Fiscal Year 2003. Accordingly, only the last eight Fiscal Years are presented.

(2) During the four months ended June 30, 2003, the District implemented some significant changes that impact the presentation of the District's financial statements. These changes include a change of the fiscal operating year from March 1 through February 28 to July 1 through June 30. In addition, the District changed their accounting method from governmental fund accounting to enterprise accounting and also implemented GASB 34.

Orange County Water District

Changes in Net Assets
Last Eight Fiscal Years

Fiscal Year		Operating Revenues	Operating Expenses	Operating Income (Loss)	Total Non-Operating Revenues (Expenses)	Net Income (Loss) Before Capital Contributions and Special Items	Capital Contributions and Special Items	Change in Net Assets
2003	(1,2)	$ 13,390,058	$ 12,444,530	$ 945,528	$ (2,195,219)	$ (1,249,691)	$ 5,489,880	$ 4,240,189
2004		57,242,782	57,620,116	(377,334)	6,968,180	6,590,846	57,909,738	64,500,584
2005		61,422,421	61,555,197	(132,776)	(1,879,105)	(2,011,881)	80,236,648	78,224,767
2006		72,364,659	73,508,860	(1,144,201)	3,194,977	2,050,776	90,358,151	92,408,927
2007		83,082,421	67,398,010	15,684,411	12,734,800	28,419,211	42,678,490	71,097,701
2008		91,669,760	64,258,149	27,411,611	18,959,831	46,371,442	21,781,469	68,152,911
2009		87,831,679	94,488,673	(6,656,994)	14,941,948	8,284,954	(10,650,053)	(2,365,099)
2010		83,794,246	96,157,265	(12,363,019)	10,006,775	(2,356,244)	(1,006,757)	(3,363,001)



(1) As recommended by GASB 44, this schedule provides data retroactively to the year GASB 34 was implemented. The District implemented GASB 34 in Fiscal Year 2003. Accordingly, only the last eight Fiscal Years are presented.

(2) During the four months ended June 30, 2003, the District implemented some significant changes that impact the presentation of the District's financial statements. These changes include a change of the fiscal operating year from March 1 through February 28 to July 1 through June 30. In addition, the District changed their accounting method from governmental fund accounting to enterprise accounting and also implemented GASB 34.

Operating Revenues By Source
Last Ten Fiscal Years

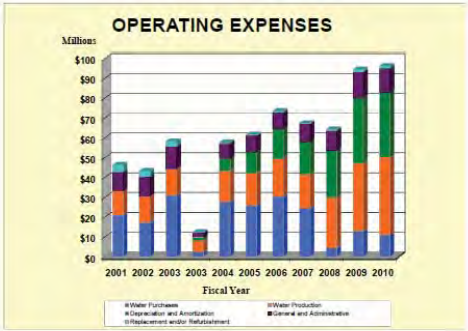
Fiscal Year		Replenishment Assessment	Basin Equity Assessments	Reclaimed Water Revenue	Total	Percent Change
2001		$ 37,467,393	$ 2,612,094	$ 1,971,090	$ 42,050,577	-
2002		39,199,160	3,114,739	2,021,015	44,334,914	5.4%
2003	(1)	43,861,845	2,085,003	2,197,514	48,144,362	8.6%
2003	(1)	12,899,755	490,303	-	13,390,058	-72.2%
2004		52,570,711	4,672,071	-	57,242,782	327.5%
2005		54,825,606	4,467,124	2,129,691	61,422,421	7.3%
2006		68,041,279	2,330,442	1,992,938	72,364,659	17.8%
2007		79,983,287	793,177	2,305,957	83,082,421	14.8%
2008		87,541,655	961,516	3,166,589	91,669,760	10.3%
2009		79,167,471	852,787	7,811,421	87,831,679	-4.2%
2010		71,682,764	2,292,388	9,819,094	83,794,246	-4.6%

(1) During the four months ended June 30, 2003, the District implemented some significant changes that impact the presentation of the District's financial statements. These changes include a change of the fiscal operating year from March 1 through February 28 to July 1 through June 30. In addition, the District changed their accounting method from governmental fund accounting to enterprise accounting and also implemented GASB 34.

Source: OCWD Finance Department

Operating Expenses by Function
Last Ten Fiscal Years

Fiscal Year		Water Purchases	Water Production	Depreciation and Amortization	General and Administrative	Replacement and/or Refurbishment	Total	Percent Change
2001		$ 21,130,943	$ 11,887,918	$ -	$ 9,719,600	$ 3,628,753	$ 46,367,214	-
2002		17,335,396	12,944,679	-	10,055,416	2,969,152	43,304,643	-6.6%
2003	(1)	30,864,053	13,283,014	-	11,542,644	2,338,456	58,228,167	34.5%
2003	(1)	2,390,889	5,716,305	1,660,829	2,464,545	191,864	12,444,530	-78.6%
2004		27,384,436	15,770,201	6,162,286	7,602,696	500,497	57,620,116	363.0%
2005		25,847,020	16,467,678	10,457,881	8,415,008	367,610	61,555,197	6.8%
2006		30,310,056	19,066,679	15,149,700	8,276,197	706,228	73,508,860	19.4%
2007		24,451,766	17,061,821	16,474,892	8,943,107	466,424	67,398,010	-8.3%
2008		4,462,320	25,467,715	23,576,893	9,986,039	735,182	64,228,149	-4.7%
2009		12,945,102	34,345,252	32,651,566	13,268,928	1,277,825	94,488,673	47.0%
2010		10,892,330	39,258,964	32,878,812	11,762,284	1,364,875	96,157,265	1.8%



(1) During the four months ended June 30, 2003, the District implemented some significant changes that impact the presentation of the District's financial statements. These changes include a change of the fiscal operating year from March 1 through February 28 to July 1 through June 30. In addition, the District changed their accounting method from governmental fund accounting to enterprise accounting and also implemented GASB 34.

Source: OCWD Finance Department

Demographic Statistics
Covering The Entire County of Orange (1)
Last Ten Fiscal Years

Fiscal Year	Population Estimates (2)	Total Personal Income (in Thousands)	Per Capita Personal Income	Median Family Income (4)	Unemployment Rate (5)
2001	2,890,353	$ 112,244,731 (3)	$ 38,834	$ 71,200	4.0%
2002	2,938,436	116,003,461 (3)	39,478	72,998	5.3%
2003	2,979,989	122,425,833 (3)	41,083	73,572	5.2%
2004	3,015,950	130,320,295 (3)	43,210	70,900	4.5%
2005	3,043,669	139,408,041 (3)	45,803	73,545	3.9%
2006	3,061,535	150,597,814 (3)	49,190	76,443	3.6%
2007	3,077,656	153,838,702 (3)	49,986	81,302	4.0%
2008	3,104,046	155,118,375 (3)	49,973	84,100	5.2%
2009	3,134,858	155,700,000 (6)	49,667	86,100	9.4%
2010	3,166,461	156,300,000 (6)	49,361	86,300 (6)	9.5%

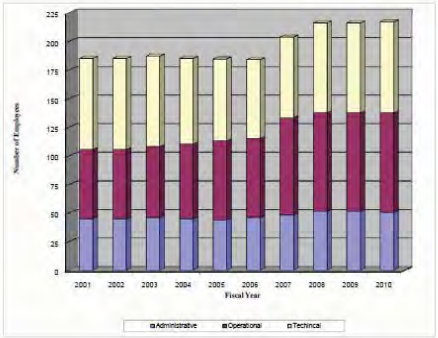
Note: and Data Sources:

(1) The Orange County Water District services 358 square miles or 45% of the total 799 square miles that make up the boundaries of the County of Orange.
(2) Data Source: Demographic Research Unit, California Department of Finance.
(3) Data Source: Bureau of Economic Analysis, U.S. Department of Commerce.
(4) Data Source: Anderson Center for Economic Research, Chapman University.
(5) Data Source: State of California, Employment Development Department as of June 30 of each fiscal year.
(6) Forecasted number.

Source: OCWD Finance Department

Personnel Trends
Last Ten Fiscal Years

Fiscal Year	FUNCTIONS Administration	Operations	Technical	Total
2001	45.0	60.5	79.5	185.0
2002	45.0	60.5	79.5	185.0
2003	46.0	62.0	79.0	187.0
2004	45.0	65.0	75.0	185.0
2005	44.0	69.0	71.5	184.5
2006	46.0	69.0	69.0	184.0
2007	48.0	85.0	70.5	203.5
2008	51.5	86.0	78.5	216.0
2009	51.5	86.0	78.5	216.0
2010	50.5	87.0	79.5	217.0



Source: OCWD Finance Department

Fiscal Year 2009-10 Groundwater Production
By Agency
(Acre-Feet)

City/Agency	Irrigation	Domestic	Total	% of water sold
Anaheim, City of		42,048.6	42,048.6	14.72%
Buena Park, City of		9,165.4	9,165.4	3.21%
County of Orange		96.9	96.9	0.03%
E.O.C.W.D.		612.5	612.5	0.21%
Fountain Valley, City of		6,109.0	6,109.0	2.14%
Fullerton, City of	8.9	17,296.4	17,305.3	6.06%
Garden Grove, City of		16,129.4	16,129.4	5.65%
Golden State Water Company		16,339.0	16,339.0	5.72%
Huntington Beach, City of		18,271.4	18,271.4	6.40%
Irvine Ranch Water District		45,853.6	45,853.6	16.06%
La Palma, City of		1,503.5	1,503.5	0.52%
Mesa Consolidated W.D.		15,841.0	15,841.0	5.55%
Newport Beach, City of		10,050.9	10,050.9	3.52%
Orange, City of		18,857.0	18,857.0	6.60%
Orange County Water Dist.		1,272.0	1,272.0	0.45%
Santa Ana, City of		24,202.5	24,202.5	8.51%
Seal Beach, City of		2,221.7	2,221.7	0.78%
Serrano Water District		1,739.7	1,739.7	0.61%
Tustin, City of		11,333.7	11,333.7	3.97%
Westminster, City of		7,650.5	7,650.5	2.67%
Yorba Linda Water District	83.5	9,233.9	9,316.4	3.26%
All Operations Other Than Above	1,130.2	8,454.7	9,584.9	3.36%
Totals	1,222.6	284,352.3	285,574.9	100%

Source: OCWD Finance Department

Demographic and Production Indicators
Last Ten Fiscal Years

1. Concept of annual report
2. Items contained in annual report
3. Case

   Bureau of Waterworks, Tokyo Metropolitan Gov.

   Orange Country Water District, USA
4. Questions and answers
5. Discussion

Suggestion: table of content

1. Overview
2. Address of chairperson
3. Information of WUSC
4. Management discussion, performance and activity overview
5. Governance, management board and committee
6. Auditor' report
7. Financial statements, notes and comments
8. Budget and performance target
9. Reference

1. Overview
- Mentions key events and significant issues
- Mostly like executive summary of annual report
- But if not convenient, possible to eliminate this chapter

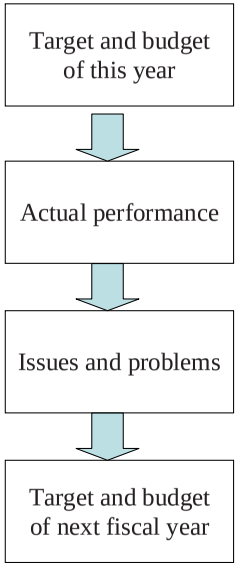
2. Address of chairperson
- Recommend to choose sufficient theme or topics and mentions
- Following topics are typical item including address of chairperson
  - general discussion about financial results and highlights
  - service environment (=business environment), water demand
  - new service
  - increases/decreases of connections
  - business strategy and plan, targets and achievements
  - changes of management structure

3. Information of WUSC
- Briefly introduce history, trend and major achievements, as well as facility and capacity
- Following topics are typically including in this section
  - Chronology
  - Trend of connections
  - Trend of revenue and expenditure
  - Major facility with capacity
  - Map of water supply networks and location of facilities
  - Chart of organization structure

5. Discussion

4. Management discussion, performance and activity overview
- Discuss performance and business activities, target of business plan and achievement, analysis, problem, emerged problem, issues, concerns for future, etc.
- Normally following item may covered in this section
  - target on business plan and achievement of the year
  - analysis with assessment and evaluation to achievements and performance
  - existing problem and activity for resolving, achievement
  - emerged problem/issues and activity for resolving, achievement
  - concerns for futures, risks, and policy/plan for risk management
  - expectation/opportunity for future, policy/plan for next fiscal year for achieve expectation/opportunity
  - explains these things on user service, technical area, financial and administrative area

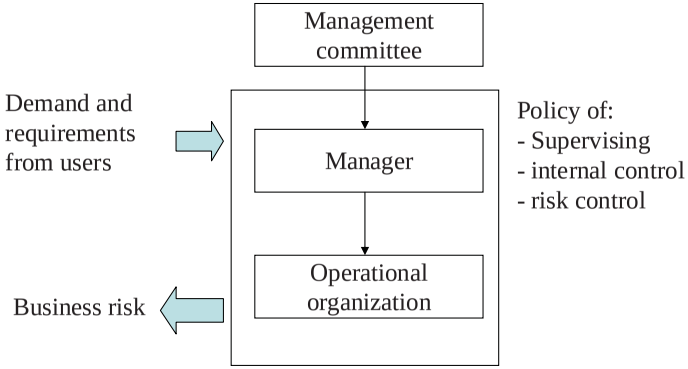
5. Discussion



- What is major targets (both in budget and non financial target in the business plan)?
- How much WUSC can achieve these financial and non financial target in the business plan?
- What is the reason of undershoot or overshoot?
- Are there any emerged issues and problem in this year?
- Is there any change of existing issues and problems WUSC already noticed as business risk?
- Policy and plan for overcome business risk
- Expected financial and non financial performance

5. Discussion

5. Governance, management board and committee
- Explain policy and system of corporate governance
- Normally including list of management board member and committee member with roles and responsibility



6. Auditor' report

6. Auditor's report
- Auditor's report and comments
- This report guarantee accountability of WUSC's accounting activities and very important, as well as mandatory part of the annual report
- Normally annual report including whole report from auditor

7. Financial statements, notes and comments

7. Financial statements, notes and comments
- If auditor’s report including sufficient financial statements, no necessary to including additionally in this part
- If WUSC needs additional notes and comments for explain about financial performance and/or results, WUSC must mentions, such as items including category, meaning of results, etc. for make more clear to explain accountability of WUSC
- If there is discrepancy between results of financial statements between previous year and this years including balance forward of previous year and beginning balance of this year, or changes of budget and target, or off the books record, WUSC must mentions with reasons on footnote
- It is also recommendable to mentions non financial performance related with financial performance, if necessary as footnotes

8. Budget and performance target

8. Budget and performance target
- Mentions budget for next fiscal year
- It is recommendable to mentions also non financial performance targets of the next fiscal year such as connections and collection efficiency

9. Reference

9. Reference
- It may recommendable to attach detail figures and charts, or supporting documents as reference in this chapter and refer on the main report

Business planning (2)

February 2011

Objective

- Understanding financial feasibility study in the business planning
- Prepare presentation by WUSC in November. 3 WUSC are requested to have presentation at joint workshop in November and explain their draft business plan.

Assumption:

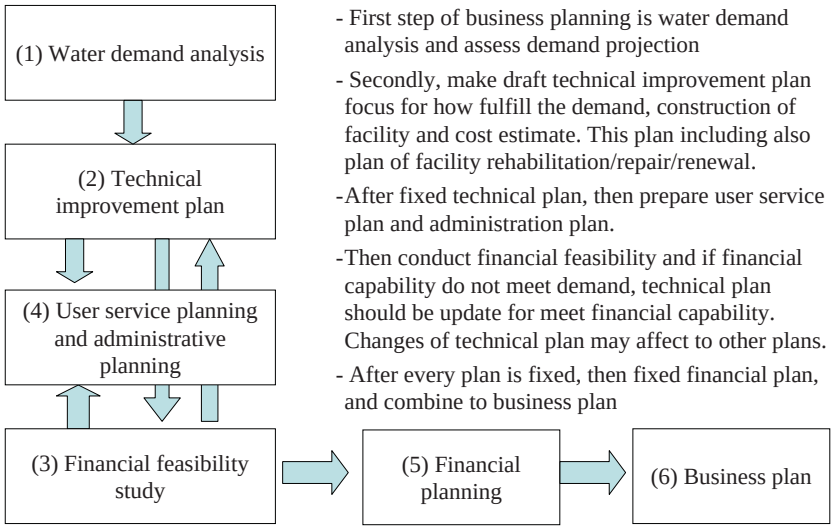
- Attendants should already know and understand technical planning. This module do not explain detail of technical part of business planning.
- Subject would be continuous to (3), (4) and (5)

Agenda

1. Data from technical planning
2. User service planning and administrative planning
3. Financial feasibility study and financial planning
4. Monitoring and evaluation
5. Structure of business plan
6. Q&A and discussion

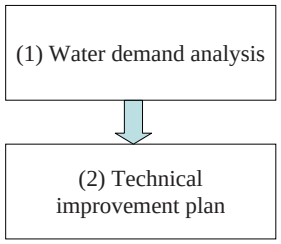
1. Data from technical planning
2. User service planning and administrative planning
3. Financial feasibility study and financial planning
4. Monitoring and evaluation
5. Structure of business plan
6. Q&A and discussion

1. Data from technical planning



- First step of business planning is water demand analysis and assess demand projection
- Secondly, make draft technical improvement plan focus for how fulfill the demand, construction of facility and cost estimate. This plan including also plan of facility rehabilitation/repair/renewal.
- After fixed technical plan, then prepare user service plan and administration plan.
- Then conduct financial feasibility and if financial capability do not meet demand, technical plan should be update for meet financial capability. Changes of technical plan may affect to other plans.
- After every plan is fixed, then fixed financial plan, and combine to business plan

1. Data from technical planning

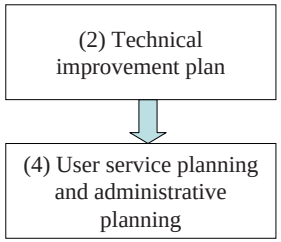


- water demand projection highly relay on projection of population
- It required highly political decision making to make technical plan for service expansion or not expansion, which area to target of expansion and water supply level (e.g. service hours)
- Again, it may required not highly political, but strategic decision making of direction of technical improvement

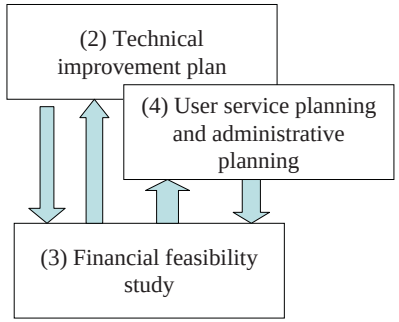
- There is three type of facility improvement strategies:

1) Improve existing area: improvement of service level in the existing service area (water quality, water pressure, supply amount, supply hours, etc.)
2) Expansion: expansion for the areas where service is not yet provided and in the existing served areas but presently not covered yet
3) Optimization: optimize such as modification and improvement of pump direct distribution system to standard system with distribution reservoir/elevated tank in existing served area for improving efficiency

1. Data from technical planning

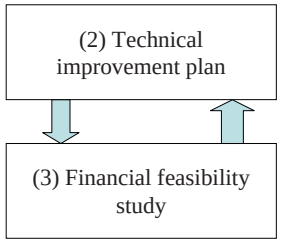


- Technical improvement plan gives ceiling of user service volume, number of connection and water consumption per connection.
- Necessary quality and quality of user services are determined, and then leads to determine necessary quality and quantity of administrative services.



- If financial capability does not meet for necessary cost of technical improvement plan, user service plan and administrative plan, financial study rejects these plans.
- In that situation, technical improvement plan must be adjust to meet financial capability

1. Data from technical planning



- How to think for capital cost of expansion/renewing and rehabilitation of facility

Political issues:

- Most significant cost in the technical improvement plan is capital cost.
- How to arrange capital cost, and policy of cost recovery for capital cost is highly political issues.
- In Nepal at present, WUSC may not take full cost recovery policy to capital cost and highly relay on subsidiary or grant from the government to capital cost. But world trend moves to full cost recovery or partially cost recovery to capital cost. (e.g. user shoulder 50%)
- This issue may looks beyond responsibility of WUSC, but someone need to discuss, and confirm as the government guarantees to provide grant and subsidiary with way to meet water demand of WUSC in the future.

1. Data from technical planning

- Financial capability is mostly decided by water rate, number of connection and average consumption per connection.
- Since increasing water rate is limited, that makes situation of not only construction of new facility may difficult, but also difficult to rehabilitating/renewing existing facility
- Technical improvement plan must consider highly political judgment, expansion or not expansion, which zone to prioritized and which zone is not prioritize to supply water under the condition of could not increasing capability, or worse declining capability.
- Thus technical improvement plan including “not improving but just maintenance facility” scenario.

1. Data from technical planning

(1) Data from technical planning to financial feasibility study

- Water volume for sales

  how much water can sold and expect revenue?

  how many user can get water supply?

  how much user can consume water?

- Capital cost

  how much need for construct new facility or purchase new equipments for water supply?

  how much need for rehabilitate/renewing/replacing facility/equipment to maintain capacity of water supply?

- O&M cost

  how much need for power/fuel for pumping, chemical for purification, salaries/allowance of facility operator, and procure of spare parts

1. Data from technical planning

(2) Data from technical planning to user service plan

- Water volume for sales

  how much water can sold and expect revenue?

  how many user can get water supply?

  how much user can consume water?

(3) Data from technical planning to administrative plan

- Facility operation organizational structure
- Number of staff

1. Data from technical planning

(4) Target setting

- Set target performance indicator for monitoring and evaluation
- example:
  - water quality meet ratio
  - water production volume
  - service hours
  - leak repair response rate
  - operation cost
  - NRW/UFW

- Monitoring and evaluation done to 1) achievement or progress of plan, and 2) outcomes or improvement to user service quality

*) NRW: Non revenue water, UFW: Unaccounted for water

1. Data from technical planning
2. User service planning and administrative planning
3. Financial feasibility study and financial planning
4. Monitoring and evaluation
5. Structure of business plan
6. Q&A and discussion

1. Data from technical planning

(2) Technical improvement plan

-Technical improvement plan gives ceiling of user service volume, and number of connection or water consumption are determined, as ceiling volume

(4) User service planning and administrative planning

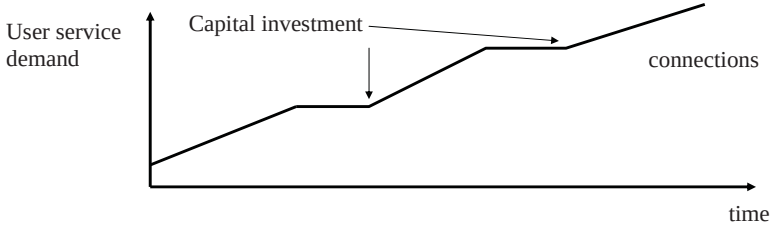
-User service plan consider data from technical improvement plan and decide number of connection by each zone by year considering improving service coverage ratio

-After decide connections, then decide necessary number of staff and business operation cost.

(3) Financial feasibility study

-Then handle number of connection by year and necessary operation cost to financial feasibility study

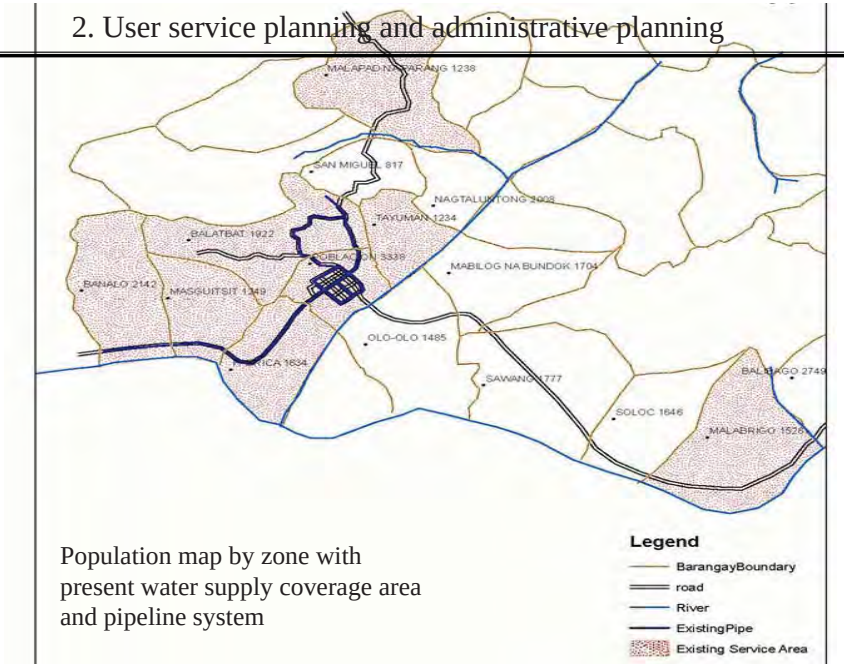
2. User service planning and administrative planning



- Capital investment improves water supply capacity
- Improvement of capacity makes increases of connection
- Increases of connection leads to increases of user service demand, including volume of meter reading, billing and collection, new connection/disconnection, user complaints.

User service demand → Quantity and quality → Job, post, and number of staff

2. User service planning and administrative planning



Population map by zone with present water supply coverage area and pipeline system

Present service coverage ratio in service coverage area

- service plan to increasing coverage ratio in served area
- service plan to increase connection by expansion

Long-Term Plan:
To construct two new systems and cover total 16 zones

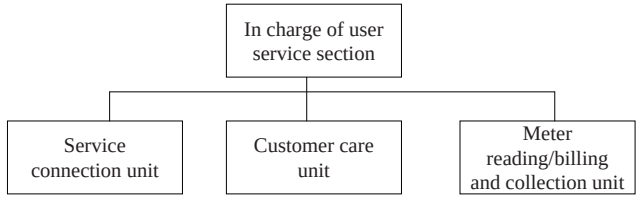
Present: 8 zones
2008: 10
2012: 12
2014: 14
2016: 16

2. User service planning and administrative planning

Zone: 1												
population 2005	5,000											
population 2010	5,500											
population 2015	7,000											
population 2020	9,000											
houses 2005	800											
houses 2010	1,000											
houses 2015	1,500											
houses 2020	2,300											
increasing ratio	10%											
Zone 1	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
coverage	25%	26%	28%	28%	30%	30%	33%	37%	38%	38%	39%	41%
connection	200	250	280	320	380	400	500	800	850	900	930	950

2. User service planning and administrative planning

(1) User service staffing plan



Service connection unit	Customer care unit	Meter reading/billing and collection unit
- User service clerk - inspector - plumber	- User service clerk	- User service clerk - Meter reader
Handle connection/disconnection, inspection of water supply	Handle user complaints/request	Handle meter reading, billing and collection, complaints regarding bill

2. User service planning and administrative planning

(2) Data from user service planning to financial feasibility study

- Information regarding revenue:
  - how many user for water supply services?
  - how many user will increasing?
  - how much water WUSC can sold to user?
  - how much WUSC can set water charge?
- Capital cost
  - how much need for construct new facility or purchase equipment for customer services?
  - how much need for rehabilitate/renewing/replacing facility/equipment to maintain capacity of user services?
  - normally, compare with capital investment in the technical area, capital investment for user service is not significant, vehicles, office facility and office equipment at most

2. User service planning and administrative planning

- O&M cost
  - how much need for salaries/allowance of customer service staff, and procure of materials/goods for maintaining customer services?
  - normally, compare with O&M cost of technical area, O&M cost for user service is not so significant, salaries, allowance, stationary, awareness campaign cost and marketing cost, at most

1. Data from technical planning

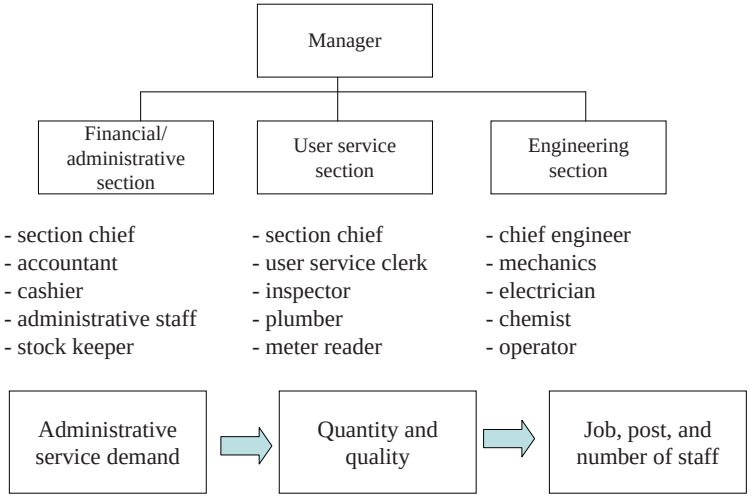
(3) Target setting

- Set target performance indicator for monitoring and evaluation, mainly consider how user service is improved
- example:
  - number of connection
  - water consumption per connection
  - user complaints response rate
  - operation cost

- Monitoring and evaluation done to 1) achievement or progress of plan, and 2) outcomes or improvement to user service quality

2. User service planning and administrative planning

(4) Organization plan



2. User service planning and administrative planning

(5) Data from administrative planning to financial feasibility study

- Capital cost

  how much need for construct new facility or purchase equipment for administrative services?

  how much need for rehabilitate/renewing/replacing facility/equipment to maintain capacity of administrative services?

  normally, compare with capital investment in the technical area, capital investment for administrative service is not significant, office facility and office equipment including computer at most

- O&M cost

  how much need for salaries/allowance of administrative staff, and procure of materials/goods for maintaining administrative services?

  normally, compare with O&M cost of technical area, O&M cost of administrative service is not so significant, salaries, allowance, stationary and supply material of computer at most

2. User service planning and administrative planning

(6) Target setting

- Set target performance indicator for monitoring and evaluation mainly consider management efficiency
- example:
  - NRW
  - connection per staff
  - collection ratio
  - operation cost
  - operational ratio

- Monitoring and evaluation done to 1) achievement or progress of plan, and 2) outcomes or improvement of management efficiency

3. Financial feasibility study and financial planning

(1) Expenditure projection

1) O&M cost

- Salaries and wages
- Power/fuel for pumping
- Chemicals for treatment
- Spare parts
- Administration and other O&M cost

2) Capital cost

- Construction cost
- Rehabilitation/renewing cost

3) Depreciation *)

4) Financial cost

- Debt service

*) there is two ways, cash flow based or income statement based financial plan

3. Financial feasibility study and financial planning

(2) Revenue projection

1) Revenue from operational activity

- Sales of water
- Sales of material
- Application fee/penalty and other operational revenue

2) Grant/subsidiary

- grant
- subsidiary

3) Non operational revenue

- Loan disbursement
- Interest and other non operational revenue

3. Financial feasibility study and financial planning

- Revenue meet expenditure or not
- How much possible to increasing water rate? *)

(3) Feasibility check

- Simply, judge with negative or positive end cash balance (in cash based projection), or keep avoiding deficit (in income statement base)
- If capital investment makes negative cash balance (or deficit), that capital investment is infeasible
- If capital investment or other plans requires more than ceiling increase of water rate, that capital investment and plans are infeasible
- Even suppose possible to arrange the loan for capital investment, but if repayment makes negative cash balance (or deficit), that capital investment is infeasible
- If expected grant or subsidiary for facility improvement, but not sure, that facility improvement is not say feasible

3. Financial feasibility study and financial planning

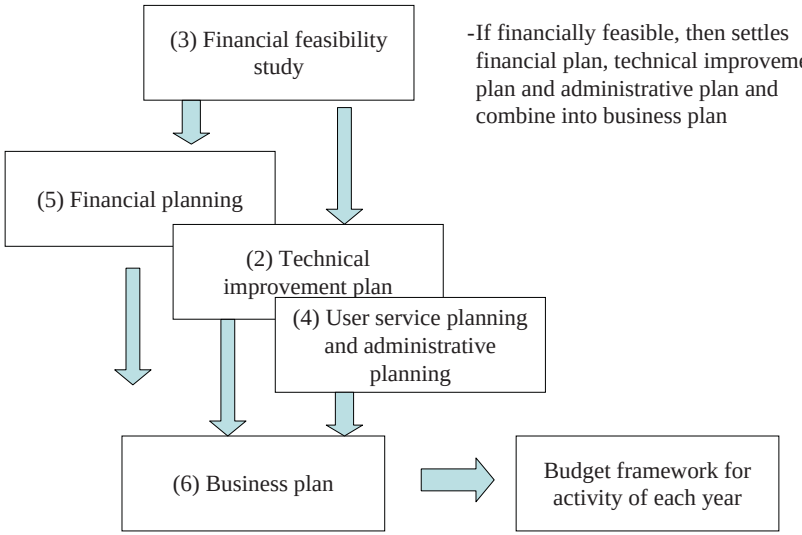
(4) Water rate setting

- Basically set with cost recovery policy
- However, water rate is public fair and also requires consideration to life of not rich people
- Government of Philippines request not exceed 5% of average house income of low income group for setting minimum charge that is consumption of first 10 cubic meter
- In generally, set minimum charge for not increasing 3% of average house income, that calculated with:

  3% of [(GDP per capita)*(average house member)]
- Cost recovery policy is another issue, but world trend moves to full cost recovery. In Philippines, policy is full cot recovery.

*) More detail of water rate setting, please refer “Manual for Preparing Revised Tariff”, by Soft Component Team and their training material in May 2007

3. Financial feasibility study and financial planning



3. Financial feasibility study and financial planning

Sample of financial simulation: expenditure projection

		Budget	Actual	Calculation							
				0	1	2	3	4	5	6	7
Conditions				2009	2010	2011	2012	2013	2014	2015	2016
A. economic factor											
1) Inflation rate				0%	3%	3%	3%	3%	3%	3%	3%
B. expenditure											
1) number of staff for target of salary and wages				20	20	20	30	30	30	30	30
number of staff	51	40	38	38	40	40	45	45	45	45	45
number of connection per staff				226	217	220	197	200	217	235	251
2) based salaries (M Riel)				192	198	210	344	387	449	536	659
based monthly salaries (M Riel)				0.80	0.82	0.87	0.96	1.08	1.25	1.49	1.83
3) based power and fule (T Riel)				977,570	1,038,449	1,050,410	1,062,370	1,074,331	1,170,019	1,265,706	1,319,531
Power and Fuel (M Riel)				978	1,070	1,114	1,161	1,209	1,356	1,511	1,623
4) based chemical (T Riel)				374,000	397,291	401,867	406,443	411,019	447,627	484,236	504,828
Chemical (M Riel)				374	409	426	444	463	519	578	621
5) based spare parts (T Riel)				270,314	287,148	290,455	293,763	297,070	323,529	349,988	364,872
Spare parts (M Riel)				270	296	308	321	334	375	418	449
6) based repair and maintenance				91	99	103	113	120	135	152	168
7) based other O&M cost				190	207	216	238	251	283	320	352
8) depreciation based			48	48	48	48	48	48	48	48	48
9) subtotal of O&M cost				2,095	2,278	2,378	2,622	2,764	3,117	3,515	3,871
10) construction/repair/ based				102	96	97	99	104	123	132	167
11) debt service based				19	57	3	3	3	3	3	3
12) tax (20%)					138	136	95	101	154	134	288

Note: presenting up to 2016, but calculation is up to 2020

3. Financial feasibility study and financial planning

		Budget	Actual	Calculation
				0
Conditions				2009
A. economic factor				
1) Inflation rate				0%
B. expenditure				
1) number of staff for target of salary and wages				20
number of staff	51	40	38	38
number of connection per staff				226
2) based salaries (M Riel)				192
based monthly salaries (M Riel)				0.80
3) based power and fule (T Riel)				977,570
Power and Fuel (M Riel)				978
4) based chemical (T Riel)				374,000
Chemical (M Riel)				374
5) based spare parts (T Riel)				270,314
Spare parts (M Riel)				270
6) based repair and maintenance				91
7) based other O&M cost				190
8) depreciation based			48	48
9) subtotal of O&M cost				2,095
10) construction/repair/ based				102
11) debt service based				19
12) tax (20%)				

1) number of staff: comes administrative plan

2) based salaries comes from administrative plan

3), 4), 5) and 6) based power and fuel, chemical, spare part and repair/maintenance cost comes technical plan

7) based other O&M cost comes from administrative plan

10) construction cost mainly comes technical plan

3. Financial feasibility study and financial planning

Sample of financial simulation: revenue projection

C. revenue		Budget	Actual	2009	2010	2011	2012	2013	2014	2015	2016
1) water production	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520	11,520
2) NRW	32%	35%	30%	28%	28%	28%	28%	28%	13%	13%	13%
average ditribution volume (capacity)	7,880	7,453	8,076	8,340	8,340	8,340	8,340	8,340	10,022	10,022	10,022
average distribution volume	4,587	7,452	7,412	7,903	8,394	8,491	8,588	8,684	7,871	8,514	8,876
3) number of connection	4,997	7,895	8,024	8,582	8,682	8,782	8,882	8,982	9,782	10,582	11,282
average consumption per connection-1	28	28	28	28	29	29	29	29	24	24	24
average consumption per capita (litter)	150	150	150	150	150	150	150	160	160	160	160
average house member	5	5	5	5	5	5	5	5	5	5	5
average consumption per connection-2	23	23	23	23	23	23	23	24	24	24	24
4) average consumption per connection	23	23	23	23	23	23	23	24	24	24	24
5) water tariff	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,800
6) Collection efficiency	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%	88%
7) revenue from sales of water	1,821	2,876	2,923	3,127	3,163	3,199	3,236	3,415	3,719	4,023	5,147
8) other revenue based				268	48	48	48	48	384	384	420
sub total of revenue	1,821	2,876	2,923	3,394	3,211	3,247	3,284	3,463	4,103	4,407	5,567
8) Subsidiary and grant											
9) New Connection Fee ($)				120	120	120	120	120	120	120	150
Excahne rate				4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Revenue				3,394	3,211	3,247	3,284	3,463	4,103	4,407	5,567
Expenditure				2,216	2,431	2,478	2,723	2,871	3,243	3,650	4,041
Net Profit before tax				1,179	780	769	561	592	859	757	1,526
Tax 20%				100	236	156	154	112	118	172	151

Note: presenting up to 2016, but calculation is up to 2020

3. Financial feasibility study and financial planning

C. revenue		Budget	Actual	2009
1) water production	11,520	11,520	11,520	11,520
2) NRW	32%	35%	30%	28%
average ditribution volume (capacity)	7,880	7,453	8,076	8,340
average distribution volume	4,587	7,452	7,412	7,903
3) number of connection	4,997	7,895	8,024	8,582
average consumption per connection-1	28	28	28	28
average consumption per capita (litter)	150	150	150	150
average house member	5	5	5	5
average consumption per connection-2	23	23	23	23
4) average consumption per connection	23	23	23	23
5) water tariff	1,500	1,500	1,500	1,500
6) Collection efficiency	88%	88%	88%	88%
7) revenue from sales of water	1,821	2,876	2,923	3,127
8) other revenue based				268
sub total of revenue	1,821	2,876	2,923	3,394
8) Subsidiary and grant				
9) New Connection Fee ($)				120
Excahne rate				4,000
Revenue				3,394
Expenditure				2,216
Net Profit before tax				1,179
Tax 20%				100

1) water production comes from technical plan

2) Consider NRW, decide distribution volume

3), 4), 5) and 6) number of connection, average consumption per connection, water tariff and collection efficiency comes from user service plan. 3) and 4) will check with 1) and 2) and confirm

7) calculate revenue

3. Financial feasibility study and financial planning

Sample of financial plan: change to projected income statement style

Battambang	Budget	Actual	Calculation							
Year	2009	2009	2009	2010	2011	2012	2013	2014	2015	2016
A. Revenue	2,990	3,176	3,167	3,211	3,247	3,284	3,463	4,103	4,407	5,567
1) Sales of water		3,132	3,127	3,163	3,199	3,236	3,415	3,719	4,023	5,147
2) Other revenue		44	40	48	48	48	48	384	384	420
B. O&M Expenditure	2,125	3,652	2,254	2,462	2,563	2,808	2,956	3,328	3,735	4,126
1) Salaries and wages	293	191	192	198	210	344	387	449	536	659
2) Power and fuel	977	1,021	978	1,070	1,114	1,161	1,209	1,356	1,511	1,623
3) Chemicals	374	2	374	409	426	444	463	519	578	621
4) Spare parts	298	924	270	296	308	321	334	375	418	449
5) Repair and maintenance			91	99	103	113	120	135	152	168
6) Construction	0	404	102	96	97	99	104	123	132	167
7) Administration and others	126	51	190	207	216	238	251	283	320	352
8) Depreciation	57	1,058	57	88	88	88	88	88	88	88
B. Operational Profit/loss	865	-476	913	749	684	476	507	774	672	1,441
C. Non Operational										
9) Non operational income			0	0	0	0	0	0	0	0
10) Non Operational expenses	0	70	19	57	3	3	3	3	3	3
D. Profit/loss before tax	865	-546	894	692	681	473	504	771	669	1,438
Unit: Million Riel										

Note: presenting up to 2016, but calculation is up to 2020

3. Financial feasibility study and financial planning

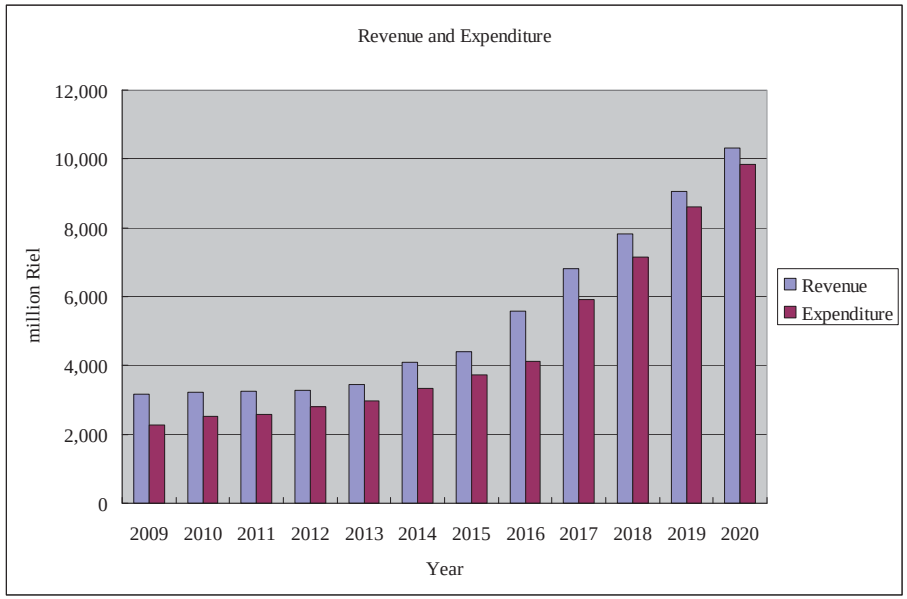
Financial plan determined budget framework by year

Battambang	Budget	Actual	Calculation		
Year	2009	2009	2009	2010	2011
A. Revenue	2,990	3,176	3,167	3,211	3,247
1) Sales of water		3,132	3,127	3,163	3,199
2) Other revenue		44	40	48	48
B. O&M Expenditure	2,125	3,652	2,254	2,462	2,563
1) Salaries and wages	293	191	192	198	210
2) Power and fuel	977	1,021	978	1,070	1,114
3) Chemicals	374	2	374	409	426
4) Spare parts	298	924	270	296	308
5) Repair and maintenance			91	99	103
6) Construction	0	404	102	96	97
7) Administration and others	126	51	190	207	216
8) Depreciation	57	1,058	57	88	88
B. Operational Profit/loss	865	-476	913	749	684
C. Non Operational					
9) Non operational income			0	0	0
10) Non Operational expenses	0	70	19	57	3
D. Profit/loss before tax	865	-546	894	692	681
Unit: Million Riel					

Target sales of water

Budget framework

3. Financial feasibility study and financial planning



3. Financial feasibility study and financial planning

(5) Financial resources arrangement

- Even full cost recovery policy is approved, but financial resources arrangement is another issue. Because water rate can not increase rapidly and immediately.
- Although loan is easiest mode of resource arrangement, still difficult by collateral problem, credit worthy problem and high interest rate for non profit organization

1. Data from technical planning
2. User service planning and administrative planning
3. Financial feasibility study and financial planning
4. Monitoring and evaluation
5. Structure of business plan
6. Q&A and discussion

4. Monitoring and evaluation

- Monitoring 1) progress and output of plan, and 2) improvement of outcome judged by performance indicator, specially how user services are improved
- Evaluation is also same A) achievement/outputs and B) outcomes mainly with viewpoints of 1) efficiency, 2) effectiveness, 3) impact 4) relevance with related plans, policy and programs, and 5) sustainability
- More detail of monitoring and evaluation of plans, please refer PCM workshop material and introductory guideline already provided and conducted in March 2010

4. Monitoring and evaluation

Sample of Performance Indicators

How good WUSC provide services to users, or how good WUSC achieve the mission and objectives

Customer Services
- quality of water
- coverage (Service population)
- service hours
(average monthly consumption volume)
- minimum charge/unit price
- complaint replay
etc.

Operation and Maintenance
- production volume
- water demand vs. supply
- leakage preventing/repair
etc.

How properly WUSC operate water supply system for achieve the requirement of customer services

Activities of WUSC

Efficiency
- NRW
- billing collection ratio
- connection/staff
etc.

How efficiently WUSC operate water supply system

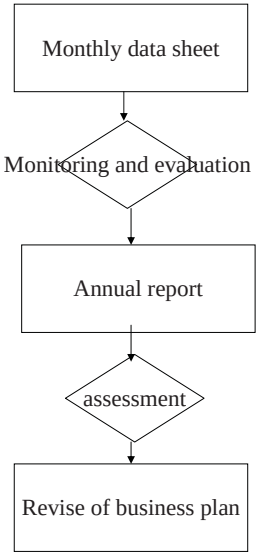
Financial performance
- operation ratio/revenue and expenditure
- profitability/cash balance
- current ratio
- debt ratio/loan and amortization
etc.

Could sustain financial independency and bear future financial demand while improving customer services

4. Monitoring and evaluation

	target	JAN	FEB	MAR	APR	MAY	JUN
(1) User services							
1) Number of active connection	2,000						
2) Population served	10,000						
3) Service coverage (%)	65						
4) Water supply service hours (hrs)	18						
5) Number of complaints accepted							
6) Number of complaints solved							
7) User complaint solving ratio (%)	95%						
(2) Water supply							
1) Number of sample test							
2) Number of sample test meet quality standard							
3) Quality standard meet ratio (%)	95%						
4) Production volume (c.m.)							
5) Revenue water volume (c.m.)							
6) Average consumptio volume per connection (c.m./month)	15						
6) Number of leakage repair							
(3) Management efficiency							
1) NRW (%)	20						
2) Collection efficiency (Y-T-D) (%)	95						
3) Connections per staff	150						
4) Operational ratio (%)	200%						
(4) Financial performance							
1) Revenue (,000 R)							
2) Disbursement (,000 R)							
3) Cash balance (,000 R)	positive						
4) End balance (,000 R)							
(5) HRM							
1) Number of staff							

4. Monitoring and evaluation



- Monitoring performance indicator monthly with monthly data sheet
- Evaluating performance annually with accumulated monthly data sheet and analysis are mentioned on annual report
- Assess performance when revise business plan. Business plan shall revise when significant change may/is happen, or end of target year

4. Monitoring and evaluation

Assessment:

(1) Achievement to previous plan

- Construction
- Connection
- Water consumption, water quality

(2) Improvement of efficiency target

- Water quality meet rate
- NRW, connection per staff, collection efficiency
- User complaints response rate

4. Monitoring and evaluation

(3) Judgment

- Efficiency of implementation
- Effectiveness of implementation to log term goal
- Impact to improvement and demands
- Relevance with other plan, policy and programs
- Sustainability of results

(4) Issues and problems

- Issues and problems solved
- Issues and problems still not solved
- Emerged issues and problems

(5) Lesson learned

- Insight and lessons learned for feed back to next phase planning

1. Data from technical planning
2. User service planning and administrative planning
3. Financial feasibility study and financial planning
4. Monitoring and evaluation
5. Structure of business plan
6. Q&A and discussion

5. Structure of business plan

(1) Executive summary
(2) Assessment of previous plan and performance
assessment, emerged issues and problems
(3) General information
Geological, geographical and demographical data
(4) Technical planning fundamental
population and water demand projection, technical improvement policy
(5) Technical improvement plan
facility improvement plan, renewing/rehabilitation plan, cost, staffing
(6) User service plan
connection, water rate and user service staffing
(7) Administrative plan
staffing, management efficiency
(8) Financial plan
budget framework, arrangement of financial resources, financial projection
(9) Reference, supporting information and attachment

5. Structure of business plan

(2) Assessment of previous plan and performance
- Assess previous plan regarding achievement, efficiency, effectiveness, impact, relevance and sustainability
- Achievement: normally plan mentions targets and simply check these target are achieved or not, and how much achieved?
- Efficiency: how plan can success efficiently implemented? Are there any delay, or difficulty/trouble to make delay?
- Effectiveness: achievement is effect to achieve the purpose, are there any different effective way?
- Impact: achievement gives impact to improving user service? How user feel?
- Relevance: are there any discrepancy with other plan/policy/program?
- Sustainability: achievement could sustainable? Are there any difficulty/problem to sustain achievement?

- Evaluate management efficiency with NRW, connection per staff, collection efficiency, user complaints response, application for new connection backlog ratio. Compare with target and standard.

5. Structure of business plan

- Financial assessment, regarding profitability and financial sustainability from WUSC's present financial situation
- Profitability: Although WUSC is NPO and not requested profitability, however not allow to be deficit. Low but ensure profitability is required. Normally at around 3-5% of profitability is said sufficient. Sometimes rather use profitability in cash flow statement base and said around 5% of profitability is required for sound management.
- Financial sustainability: financial sustainability judged by end cash balance and current ratio, and end cash balance is possible to cover short term capital investment, emergency, and few month operational cost, it may judged sustainable for a while. Financial sustainability also check with debt ratio and liquidity for more comprehensive judgment.

- Review how existing issues and problems are solved by previous plans
- Consider are there emerged issues and problems?
- What should be consider for next plan?

5. Structure of business plan

(2) Assessment of previous plan and performance
- Sample of financial assessment, emerged issues and problems

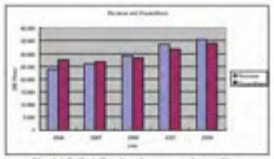


Fig. 4-6-2: Cash flow based revenue and expenditure

Although the WD has negative cash balances in 2004 and 2005, they improved their situation in 2006 and has kept positive cash balances after that. Revenue is increasing annually by around 10% but growth rate has dropped to 5% in 2008.

(2) Financial analysis
1) Profitability
For WDs, 5% is the average Ratio of cash based profitability (cash balance). Above 5% will turn to profit. The WD keeps relatively sufficient profitability in comparison to other non-profit organizations as well as with other WDs.
The WD fell to negative cash balance in 2004 and 2005, however, in their income statement, they kept profit except in 2006. Net profit ratio is more than 10% in 2004 and 2008, but almost zero in 2005 and 2007.
The WD always keeps their end balance by more than 10% and this shows sound financial management. Profitability is in sufficient level.

2) Efficiency
Performance indicators of management efficiency are excellent regarding NRW and connection per staff. NRW is 18%, less than LWUA's standard NRW rate (25%). Collection Efficiency is 96%, more than LWUA's standard collection efficiency (95%).

3) Sustainability:
Ratio of debt service to total expenditure dropped rapidly in 2008 and this reduction will contribute to financial sustainability. Long term debt in 2008 is around 35 million Pesos and it could be constantly reduced on repayment schedule. Presently, there is not significant negative factor that may effect to financial sustainability.

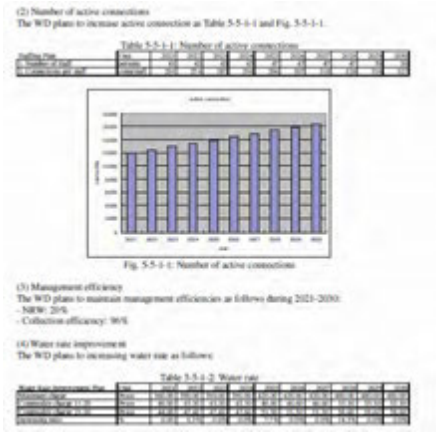
4-6-3 Issues and Problems
Table 4-6-3 shows their existing loan from LWUA. Debt is not a serious concern issue, but to ensure future capital investment, the WD should increase water rate to the average level (230 Peso).

Table 4-6-3: Existing loan

Also, as shown in Table 4-7, connection per staff is rather too good and has no unnecessary redundancy to maintain quality of customer service. It may be recommendable to increase more

5. Structure of business plan

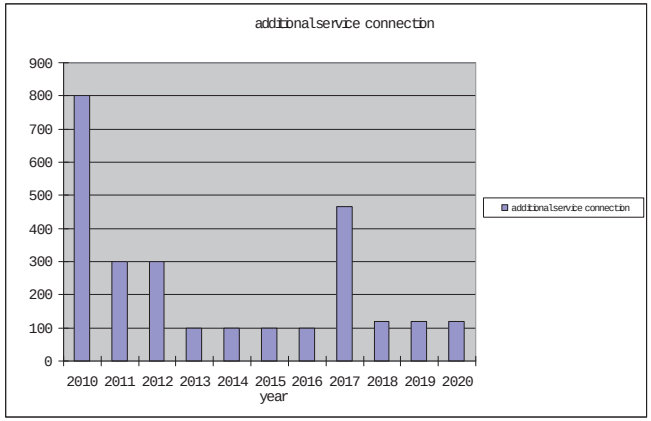
(6) User service plan



- At least two information is necessary, connections projection and water rate improvement plan
- Connection: total connection and additional connection by year. In this sample calculate for next 10 years.
- Water rate improvement plan: also calculate necessary and possible water rate. In this sample, have plan for next 10 years. However, this water rate may update by situation and political reason, or enacting mechanism in future.

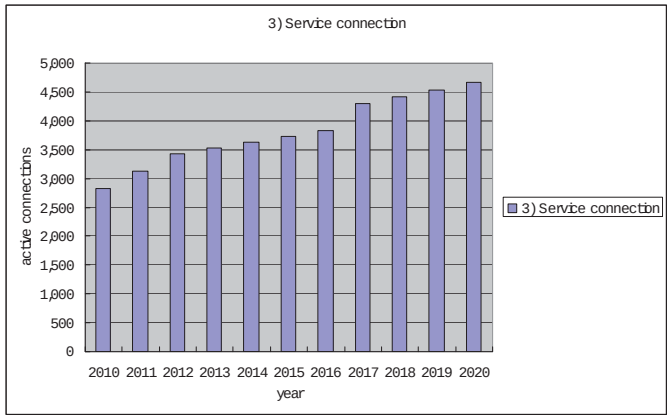
5. Structure of business plan

(6) User service plan
- Connection



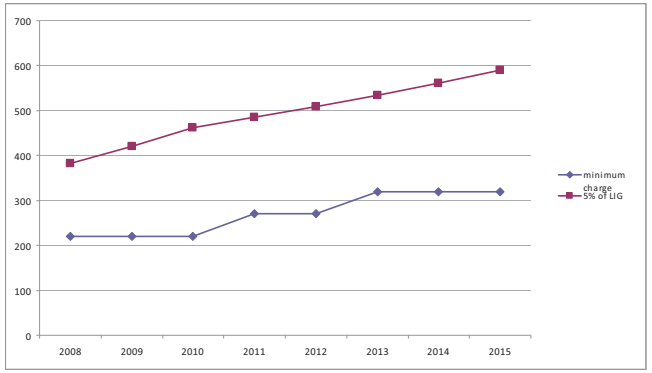
5. Structure of business plan

(6) User service plan
- Connection



5. Structure of business plan

(6) User service plan
- water rate



	2008	2009	2010	2011	2012	2013	2014	2015
Minimum charges up to 10 cm (Pesos)	220	220	220	270	270	320	320	320
Commodity charges up to 20 cm (Pesos)	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00
5% of average house income for low income group (Pesos)	382	470	482	493	509	535	582	590
percentage of minimu charge to ceiling price	58%	52%	68%	58%	51%	60%	57%	54%
Average collections efficiency (%)	100%	80%	95%	90%	89%	90%	90%	90%
Monthly Water Charges (300 Pesos) with efficiency	334	338	334	434	434	513	513	513
Required average monthly charges for achieve the capital investment in the year	337	382	406	343	434	513	578	414

5. Structure of business plan

(7) Administrative plan

- Administrative plan should contains at least two information, total staffing plan and management efficiency target
- Total staffing: with management efficiency policy, normally, set number of staff as 120-150 on ratio of connections per staff for size of connections 1,500-2,500 water supply system. However, number of staff is consider structure of system, area of covered, geographical location, nature of job environment and other factors.
- Management efficiency: NRW, connection per staff, collection efficiency, operational ratio, user complaint response ratio, etc.

5. Structure of business plan

(7) Administrative plan
- management efficiency

	actual					projection					
Performance Indicators	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
(1) General Information											
Population served	6,820	6,985	7,595	9,030	10,165	14,165	15,665	17,165	17,665	18,165	18,665
Service Coverage (%)	18%	18%	20%	24%	27%	38%	42%	45%	47%	48%	49%
Number of active service connections	1,364	1,387	1,511	1,806	2,033	2,833	3,133	3,433	3,533	3,633	3,733
UFW (%)	18%	33%	28%	26%	32%	25%	25%	25%	25%	25%	25%
NRW (%)	19%	30%	34%	34%	34%	25%	25%	25%	25%	25%	25%
Production volume (m3/day)	1,250	1,085	1,161	1,259	1,457	2,635	2,635	2,635	2,635	2,635	2,635
Accounted water volume (m3/day)	745	762	762	934	964	1,976	1,976	1,976	1,976	1,976	1,976
Consumption Volume	14.94	15.29	13.94	13.13	13.67						
(2) management											
Collection efficiency (%)	99%	99%	99%	100%	99%	99%	99%	99%	99%	99%	99%
service connection per staff	124	126	116	120	136	126	132	136	142	147	153
(3) Financial											
Annual revenue (thousand Pesos) on cash flow statement	6,914	9,243	9,822	13,636	28,565	24,156	17,129	28,514	31,281	22,707	23,322
Annual expenditure (thousand Pesos) on cash flow statement	6,845	9,299	9,763	13,541	12,501	20,419	15,092	27,709	29,462	21,421	22,637
Annual cash balance on cash flow statement (thousand Pesos)	69	-56	59	95	16,064	3,737	2,037	745	1,819	1,286	685
Annual cash flow end balance on cash flow statement (thousand pesos)	139	83	142	237	16,301	20,038	22,075	22,821	24,639	25,925	26,610
Annual long term debt on balance sheet (thousand pesos)	1,455	1,420	1,420	14,882	21,748	25,056	25,056	34,901	44,090	44,090	44,090

5. Structure of business plan

(8) Financial plan
- Revenue projection
- Expenditure projection
- Projected cash flow or projected income statement
- Financial resources arrangement plan, if any

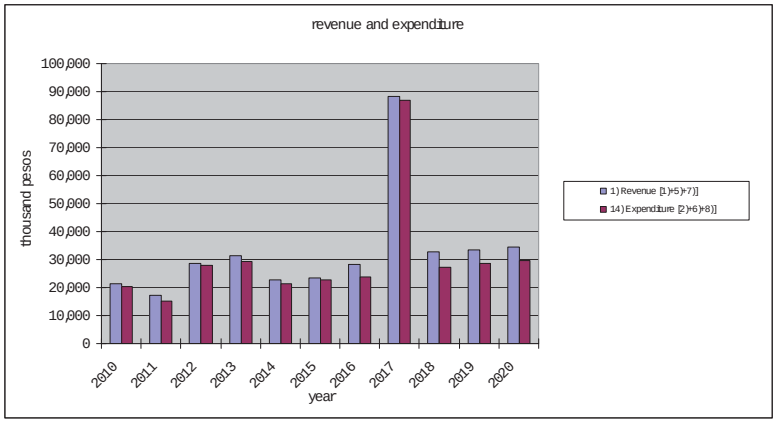
5. Structure of business plan

(8) Financial plan

Table 5.5.1-1: Cash flow	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
A) Cash flow of Operation																
Revenue																
1) Revenue of water supply system [1-1)+1-2)]	6,314	9,243	9,822	8,736	11,486	14,849	17,352	18,913	22,092	22,707	23,322	28,309	32,978	32,646	33,322	34,397
1-1) Sales of water	5,376	5,908	7,454	7,502	8,815	12,049	16,302	17,963	21,742	22,357	22,972	27,959	31,351	32,226	33,107	33,977
1-2) Other Revenue	938	3,335	2,468	1,234	2,671	2,800	1,050	1,050	350	350	350	1,028	420	420	420	420
Expenditure																
2) Expenditure for Operation [2-1)+2-2)+2-3)+2-4)+3)+4)]	6,189	8,500	9,151	10,032	11,431	12,040	13,017	14,883	15,493	16,295	17,480	18,471	19,841	21,885	22,810	23,990
2-1) Salaries, Wages (,000 Pesos)	1,191	1,852	1,905	1,519	2,346	3,453	3,923	3,616	3,797	3,987	4,526	4,756	4,994	6,300	6,615	6,946
2-2) Pumping Costs: elec +fuel (,000 Pesos)	984	1,162	1,384	1,334	1,293	1,384	1,480	1,644	1,750	1,882	2,014	2,135	2,428	2,596	2,777	2,972
2-3) Treatment Chemicals (,000 Pesos)	10	0	0	5	0	12	13	13	14	15	15	16	16	17	18	19
2-4) Other O&M Expenses (,000 Pesos)	3,981	5,486	5,962	7,174	7,802	8,191	8,602	9,611	9,983	9,958	10,453	10,978	11,327	12,103	12,709	13,344
3) Retained Fund (3%) and LWUA's franchise& tax (2%)	0	0	0	0	0	0	0	178	442	451	465	568	660	653	670	688
4) Tax	83															
Cash flow balance of operational activity	125	743	671	1,705	55	3,808	4,335	4,330	6,597	6,412	5,842	9,838	13,138	10,761	10,512	10,407
B) Capital Investment																
5) Capital revenue	0		0	0	0	3,308		0					0			
6) Capital expenditure	449	449	468	739	525	7,317	868	11,883	11,215	1,135	1,166	1,411	62,237	1,882	1,676	1,720
C) Financial activity																
7) Revenue for financial activity	600			4,900	1,242	3,308	0	9,846	9,180				55,420			
8) Repayment to loan and arrears [8-1)+8-2)]	207	320	144	4,779	367	88	1,216	1,216	2,672	3,991	3,991	3,991	3,991	3,991	3,991	3,991
8-1) Principle portion																
8-2) Interest portion																
9) Cash flow balance (end)	139	83	142	237	464	1,643	3,893	4,865	6,684	7,970	8,655	13,087	14,626	19,961	25,006	29,702
D) Other financial information	1,455	1,420														
10) Debt Balance (Loan - principle)	1,455	1,420	1,420	6,943	21,748	25,056	25,056	34,901	44,090	44,090	44,090	44,090	99,519	99,519	99,519	99,519
E) Cash balance of operational activity	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1) Revenue of water supply system [1-1)+1-2)]	6,314	9,243	9,822	8,736	11,486	14,849	17,352	18,913	22,092	22,707	23,322	28,309	32,978	32,646	33,322	34,397
2) Expenditure for Operation [2-1)+2-2)+3)+4)]	6,189	8,500	9,151	10,032	11,431	12,040	13,017	14,883	15,493	16,295	17,480	18,471	19,841	21,885	22,810	23,990
3) Cash flow balance of operational activity	125	743	671	1,705	55	3,808	4,335	4,330	6,597	6,412	5,842	9,838	13,138	10,761	10,512	10,407
G) Cash balance and cash flow balance of (end)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1) Revenue [1)+5)+7)]	6,914	9,243	9,822	13,636	12,728	21,464	17,352	28,759	31,581	22,707	23,322	28,309	88,397	32,646	33,322	34,397
14) Expenditure [2)+6)+8)]	6,845	9,299	9,763	13,541	12,501	20,345	15,103	27,786	29,462	21,421	22,637	23,877	86,868	27,312	28,477	29,709
15) Cash balance	69	-56	59	95	227	1,119	2,250	973	1,819	1,286	685	4,432	1,529	5,335	5,045	4,687
9) Cash flow balance (end)	139	83	142	237	464	1,643	3,893	4,865	6,684	7,970	8,655	13,087	14,626	19,961	25,006	29,702

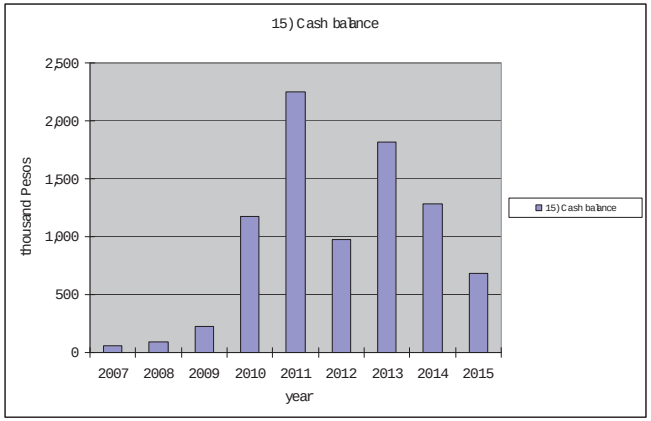
5. Structure of business plan

(8) Financial plan



5. Structure of business plan

(8) Financial plan



5. Structure of business plan

(8) Financial plan

- Sample of financial resources arrangement plan. In this sample, they consider arrangement by loan.

(5) Financial arrangement for capital investment
The WD has plans to do capital investment in 2012 and 2018:

1) Capital investment in 2012:
For capital investment in 2012, the WD plans to arrange the financial source with regular loan from LWUA as:
- expected capital investment amount: 27.4 million Pesos with price of 2010
- loan condition: required 10% equity contribution by the WD
- interest rate: 9.5%
- loan period: 20 years
- grace period: 1 year

Annual repayment could be around 3 million Pesos for this investment.

2) Capital investment in 2018:
For capital investment in 2018, the WD plans to arrange the financial source with regular loan

6-8

from LWUA as:
- expected capital investment amount: 106.7 million Pesos with price of 2010
- loan condition: required 10% equity contribution by the WD
- interest rate: 9.5%
- loan period: 20 years
- grace period: 1 year

Annual repayment could be around 16 million Pesos for this investment.

1. Data from technical planning
2. User service planning and administrative planning
3. Financial feasibility study and financial planning
4. Monitoring and evaluation
5. Structure of business plan
6. Q&A and discussion

6. Q&A and discussion

- WUSC are requested to have short presentation at November workshop
- Two presentation, A) hygiene education for school kid, and B) business plan
- Presentation of A) hygiene education for school kid:
  1) brief introduction of presenter
  2) demonstration of teaching to school kid
  3) experience and future plan
  4) Q&A
- Around 30 minutes for each WUSC including Q&A

6. Q&A and discussion

- Presentation of B) business plan:
  1) brief introduction of WUSC
  2) water demand analysis
  3) technical plan
  4) customer service and administrative plan
  5) financial plan
  6) Q&A
- Around 30 minutes for each WUSC including Q&A

6. Q&A and discussion

- Workshop schedule and program are not yet clearly decide, still on planning, however:

  10:00-10:30 opening remarks
  10:30-11:00 presentation of business planning by Mangada WUSC
  11:00-11:15 coffee break
  11:15-11:45 presentation of business planning by Gauradha WUSC
  11:45-12:15 presentation of business planning by Dhullabari WUSC
  12:15-13:00 lunch break
  13:00-13:30 discussion and comment for business plan
  13:30-14:00 presentation of public hygiene program, by Gaurada WUSC
  14:00-14:30 presentation of public hygiene program, by Dhullabari WUSC
  14:30-14:45 coffee break
  14:45-15:15 presentation of public hygiene program, by Mangada WUSC
  15:15-15:45 discussion and comment for hygiene program
  15:45-16:15 closed remarks

6. Q&A and discussion

- You can use flip chart for presentation
- You can also use computer, projector and Powerpoint
- You can speak Nepali, and use interpreter who translate to English or directly speaking in English

Business Planning Follow UP (Financial Plan)

March 2011

1. Number of connection
2. Revenue projection
3. Expenditure projection
4. Judgment

1. Number of connection

- Project additional connections annually to 2020
  1) Normal increasing without special expenses (in coverage area)
  2) Increasing with expansion

- Calculate total active connection annually to 2020

(1) Number of Connection												
Additional Connection	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Zone 1												
Zone 2												
Zone 3												
Zone 4												
Zone 5												
Zone 6												
Total	0	0	0	0	0	0	0	0	0	0	0	0
1) Connections		0	0	0	0	0	0	0	0	0	0	0

(1) Number of Connection
Additional Connection
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Total
1) Connections

2. Revenue projection

1) Revenue from sales of water

m: minimum charge (Rupee) (up to first 10 cubic meters)
c: commodity charge (Rupee)
n: number of connections
v: monthly average consumption per connection (cubic meter)
rw: annual income from sales of water
e: collection efficiency

rw=(n*[10*m+(v-10)*c)]*12 month)*e

2) Income from new connection

nn: number of new connection
af: application fee
rn: revenue from new connections

rn= nn*af

2. Revenue projection
3) Membership due
md: membership due (Rupee)
cf: card fee (Rupee)
rm: annual income from membership due

rm= n*(md+cf)

4) Other revenue from services
ro: rw*0.05 (in case 5%)

5) Total revenue from user services (operational revenue)
R=rw+rn+rm+ro

(2) Revenue Projection	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2) Average Consumption Volume		0	0	0	0	0	0	0	0	0	0	0
3) Minimum Charge												
4) Commodity Charge												
5) Collection efficiency												
6) Revenue from sales of water	0	0	0	0	0	0	0	0	0	0	0	0
7) New connection fee												
8) Member fee and card fee												
9) Other revenue (5%)	0	0	0	0	0	0	0	0	0	0	0	0
10) Operational Revenue	0	0	0	0	0	0	0	0	0	0	0	0

(2) Revenue Projection
2) Average Consumption Volume
3) Minimum Charge
4) Commodity Charge
5) Collection efficiency
6) Revenue from sales of water
7) New connection fee
8) Member fee and card fee
9) Other revenue (5%)
10) Operational Revenue

2. Revenue projection

6) Revenue from capital investment activity
- Not consider

7) Revenue from financial activity
- Not consider

3. Expenditure projection

1) Operational cost
- 4% inflation for salaries, chemicals, spare parts and other O&M
- 7% inflation for power and fuel for pumping

S: salaries and wages of previous year
P: Power cost of previous year
C: Chemicals and cost for purifications of previous year
O: Other O&M cost of previous year
E: expenditure of this year

E=(S+C+O)*1.04+P*1.07

* Adjust and set sufficient bases to previous year data, no necessary to set actual data. Also if you want to change the format to income statement style, you must add depreciation.

3. Expenditure projection

2) Capital cost
- 4% inflation for escalation of cost estimate

Cc: Capital cost estimated with price of 2011
CC: Capital cost when investing
i: investment years from 2011

CC=Cc*(1.04^i)

3) Financial cost
- Not consider

(3) Expenditure	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1) Number of staff												
2) Average salaries			0	0	0	0	0	0	0	0	0	0
3) Salary and wages	0	0	0	0	0	0	0	0	0	0	0	0
4) Power and fuel for pumping			0	0	0	0	0	0	0	0	0	0
5) Chemical and filtration			0	0	0	0	0	0	0	0	0	0
6) Other O&M cost			0	0	0	0	0	0	0	0	0	0
7) Depreciation												
8) Operational cost	0	0	0	0	0	0	0	0	0	0	0	0
(4) Capital cost	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1) Capital cost												

(3) Expenditure
1) Number of staff
2) Average salaries
3) Salary and wages
4) Power and fuel for pumping
5) Chemical and filtration
6) Other O&M cost
7) Depreciation
8) Operational cost
(4) Capital cost
1) Capital cost

Projection income statement	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operational revenue	0	0	0	0	0	0	0	0	0	0	0	0
sales of water												
other operational revenue												
Operational expenditure												
salaries and wages												
power and fuel for pumping												
chemical and filtration												
other O&M cost												
Capital revenue and expenditure												
capital revenue												
capital expenditure												
Financial revenue and expenditure												
financial revenue												
financial cost												
Cash Balance												
Cash End Balance												
Unit: ,000 Rupee												

Projection income statement
Operational revenue
sales of water
other operational revenue
Operational expenditure
salaries and wages
power and fuel for pumping
chemical and filtration
other O&M cost
Capital revenue and expenditure
capital revenue
capital expenditure
Financial revenue and expenditure
financial revenue
financial cost
Cash Balance
Cash End Balance
Unit: ,000 Rupee

4. Judgment

- Negative or positive cash balance?
- If negative cash balance, check the possibility to increasing additional connection or water rate, or reduce expenditure with chief engineer and manager

TOR and my roles

-TOR 17: Water supply system and public hygiene education

-> Introduction in first year and do series of workshops from 2nd year

-TOR 18: Efficient billing and collection

-TOR 19: Customer ledger management

-> Consider computerization of billing system, but if not success to get grant from JICA, still do series of workshop training on this issues from 2nd year

-TOR 20: User complaints management system

-> develop manual and consider implementation

-TOR 21: Annual report

-> first introduce business planning and then suggest to improving, and couching on 2nd year

Business Planning

September 2007

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

Objective

- Understand basic knowledge of Business Planning

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

But first, why business plan is necessary?

Your answer:

-

-

-

- My answer. Because stakeholder could not understand you and impossible to support you. Suppose you want to start business and have business plan but not have enough money, I can lend you my money. But if you want to start business but not have business plan, I don't know how much you need money.

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

Secondly, why WUSC need business plan?

Your answer:

-

-

-

-

- My answer. Because everything based on business plan. Water rate is set based on business plan. Item on annual report based on business plan. Recruiting staff is done based on business plan.

So, what is business plan?

Your answer:

-

-

-

- My answer. Business plan is plan covers for next 5-10 years and determined major activities for achieve demand, and countermeasure for issues and problems. That including demand, necessary facility improvement, and necessary engineering, commercial and administrative activities.

Agenda

1. Water Demand Projection
2. Issues and problems
3. Facility improvement plan
4. Financial analysis and feasibility study of capital investment
   (1) Projection of expenditure
   (2) Projection of revenue

1. Water Demand Projection
2. Issues and problems
3. Facility improvement plan
4. Financial analysis and feasibility study of capital investment
   (1) Projection of expenditure
   (2) Projection of revenue

- Project water demand

(1) Confirm present population and household by zone both service coverage area and non service coverage area

(2) Calculate average family member per household

(3) Project population growth by zones and project households by zones for next 5-10 years

(4) Decide service coverage ratio by zones and by year

(5) Project average and maximum water consumption per capita per day and project water demand by zones for next 5-10 years

(6) Project NRW/UFW for next 5-10 years and calculate demand of water distribution volume per day by zones.

- Project water demand

(7) You must decide service coverage area and non service coverage area for next 5-10 years

(8) Summing water demand by years for service coverage area (including planned service coverage area)

(9) Now you can decide **water production demand** by year

Project water demand sample

Words:

Brgy (Barangay) is almost same as zone or smallest community

NRW: Non Revenue Water which calculated:

NRW=(intake volume - billed and collected volume) / intake volume

UFW: Unaccounted for Water which calculated:

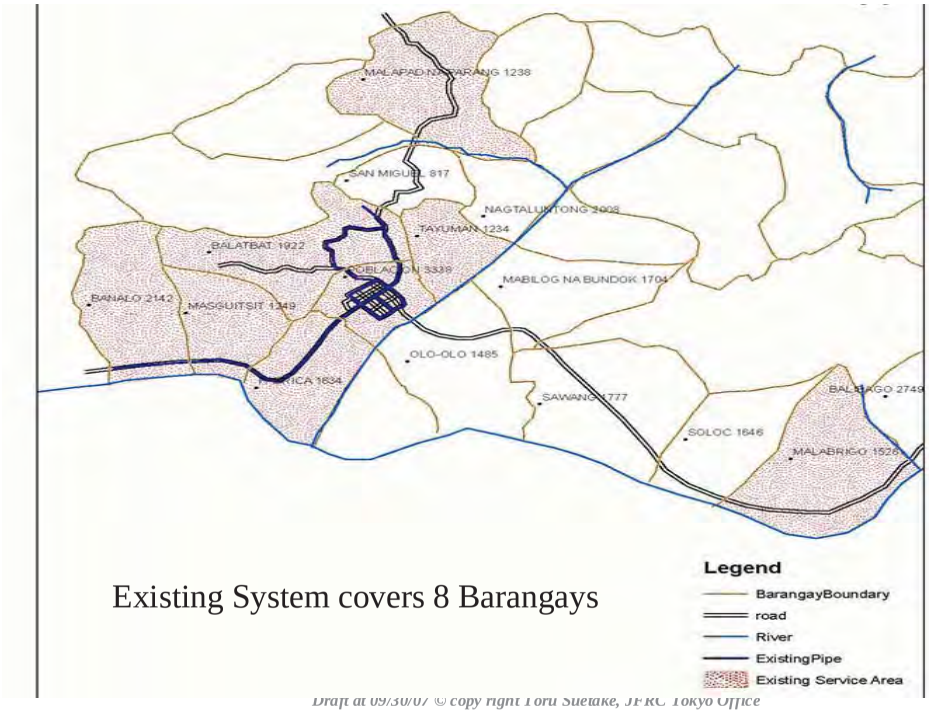
UFW=(intake volume – accounted volume) / intake volume

Accounted volume including water for use flushing facilities, or give a way such as for fire fighting

Table 3.3.2 Present and Projected Municipal Population

Name of Brgy	2005		2010	2015
	%	persons	persons	Persons
1. Linasin	8.04	2,176	2,333	2,500
2. Consuelo Sur	4.96	1,343	1,440	1,543
3. Central	2.4	650	697	747
4. San Isidro	5.48	1,484	1,591	1,705
5. La Paz	4.92	1,331	1,427	1,529
6. San Guillermo	2.77	750	804	862
7. Burgos	7.33	1,985	2,128	2,281
8. Rizal	1.94	525	563	603
9. Lucero	4.79	1,295	1,389	1,488
10. Laoag	8.45	2,288	2,453	2,629
11. Consuelo Norte	5.49	1,485	1,592	1,706
12. Rabanes	3.97	1,075	1,153	1,235
13. Linusungan	5.17	1,399	1,500	1,607
14. Nagbunga	4.18	1,130	1,212	1,298
15~18 Brgys.	30.11	8,148	8,444	8,759
Total	100.00	27,064	28,726	30,492

Lobo has 26 Barangays



Existing System covers 8 Barangays

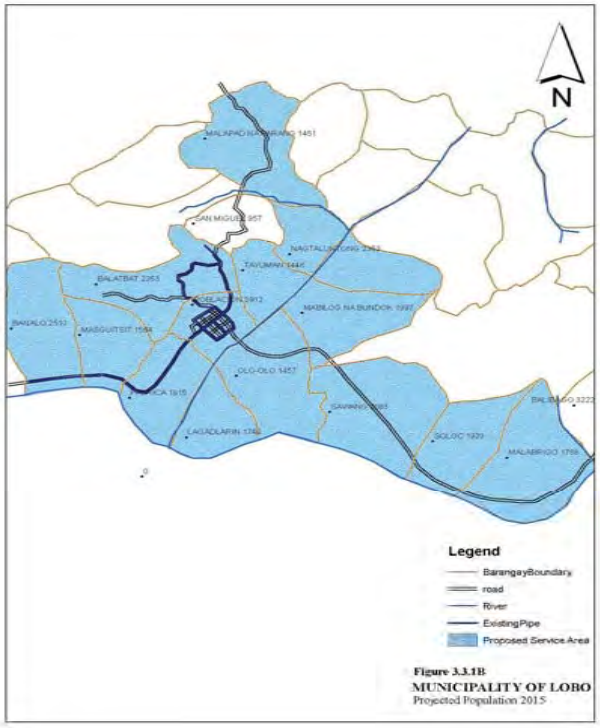


Figure 3.3.1B
MUNICIPALITY OF LOBO
Projected Population 2015

Table 5.2.1 Planning Fundamentals for Medium Term and Long Term Development Plan

Items	2005	2010 Medium Term		2015 Long Term
		Stage-1	Stage-2	
(1) Municipal Population	37736	40,851		44,225
(2) No. of Brgy to be covered	8	10	11	16
(3) Concerned Brgy Population	14,283	22,186		32,477
(4) No. of Service Connection	1,339	1,679	2,384	3,376
(5) Population to be served	6,695	8,395	11,922	16,882
(6) Per Capita Consumption (L/d)	88~120	88~110	100~110	100~110
(7) Daily Ave. Consumption (m3)	736	866	1,245	1,754
(8) UFW rate	16~53%	16~53 %	20~40%	20~30%
(9) Daily ave. Demand (m3)	947	1,111	1,599	2,225
(10) Daily max. Demand (m3)	1,136	1,445	2,079	2,893

Table 5.3.1 Water Demand for Existing Water Supply System in 2005

	Barangay	2005 Brgy Population	Daily Average Consumption: Pop served	Daily Average Consumption: unit demand (lpcd)	Daily Average Consumption: Quantity (m3)	UFW	Daily average demand (m3)	Daily max demand (m3)
	Balatbat	1,922	820	97	80	28%	110	132
	Tayuman	1,234	515	97	50	28%	69	83
1	**Sub-total**	**3,156**	**1,335**		**129**		**179**	**215**
	Banalo	2,142	730	120	88	16%	104	125
	Fabrica	1,634	305	120	37	16%	44	53
	Masaguitsit	1,249	130	120	16	16%	19	23
	Poblacion	3,338	2,890	120	347	16%	413	496
2	**Sub-total**	**8,363**	**4,055**		**487**		**580**	**696**
3	Malapad Na Parang	**1,238**	**490**	**88**	**43**	**53%**	**92**	**110**
4	Malabrigo	**1,526**	**815**	**94**	**77**	**20%**	**96**	**115**
	TOTAL	**14,283**	**6,695**		**736**		**947**	**1,136**

Table 5.3.3 Water Demand Projection for 2015

	Barangay	Brgy Population	Daily Average Consumption: Pop served	Daily Average Consumption: unit demand (lpcd)	Daily Average Consumption: Quantity (m3)	UFW	Daily average demand (m3)	Daily max demand (m3)
1	Balatbat	2,253	1,261	100	126	25%	168	219
	Tayuman	1,446	911	100	91	25%	121	158
	Sub-total	**3,699**	**2,172**		**217**		**290**	**376**
	Banalo	2,510	1,807	110	199	20%	248	323
	Fabrica	1,915	809	110	89	20%	111	145
	Masaguitsit	1,464	395	110	43	20%	54	71
	Poblacion	3,912	3,521	110	387	20%	484	629
	Sub-total	**9,801**	**6,532**		**719**		**898**	**1,168**
2	Malapad Na Parang	**1,451**	**849**	100	**85**	30%	**121**	**158**
	San Miguel	957	287	100	29	20%	36	47
	Nagtaluntong	2,353	706	100	71	20%	88	115
3	**Sub-total**	**3,310**	**993**		**99**		**124**	**161**
4	Mablilog Na Bundok	1,997	1,119	100	112	20%	140	182
	Sawang(Part)	1,250	800	100	80	20%	100	130
	Olo-olo	1,457	714	100	71	20%	89	116
	Lagadlarin	1,740	522	100	52	20%	65	85
	Sub-total	**6,444**	**3,155**		**315**		**394**	**513**
	Balibago	**3,222**	**806**	**100**	**81**	**20%**	**101**	**131**
	Malabrigo	1,788	1,359	100	136	20%	170	221
	Soloc	1,929	483	100	48	20%	60	78
	Sawang(part)	833	533	100	53	20%	67	87
5	**Sub-total**	**4,550**	**2,375**		**238**		**297**	**386**
	TOTAL	**32,477**	**16,882**		**1,754**		**2,225**	**2,893**

1. Water Demand Projection
2. Issues and problems
3. Facility improvement plan
4. Financial analysis and feasibility study of capital investment
   (1) Projection of expenditure
   (2) Projection of revenue

2. Issues and problems

(1) List up issues and problems presently you have regarding water supply facilities

(2) Consider present capacity of facility could achieves water demand

(3) Add issues and problem for achieve future water demand on the list

(4) Consider countermeasures for overcome these issues and problems and achieve water demand

Issues and problems sample

Existing Barangay Water Works may makes conflict with water supply system of Water District. Water District (almost same as WUSC) must decide to provide water by their system, or not provide water to this area, or merge and acquisition of Barangay Water Works. But political intervention makes sometimes so difficult and consume so much time. Sometimes distribution main running through this area and people stolen water but could not stop.

Direct Pumping also makes inefficiency regarding power consumption and changing to gravity system from elevated tank is recommendable, sometimes.

Issues and Problems on Existing Water Supply

1. Central Sub-system 2

- ❖ Direct Pumping due to topographical condition
- ❖Existence of Barangay Water Works
- ❖Existence of shallow wells

2. **Malapad na Parang System**

- ❖No sufficient source
- ❖Topographical Condition

3. **Malabrigo System**

- ❖Shallow well, over pumping may cause salt intrusion

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

1. Water Demand Projection
2. Issues and problems
3. Facility improvement plan
4. Financial analysis and feasibility study of capital investment
   - (1) Projection of expenditure
   - (2) Projection of revenue

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

3. Facility improvement plan

(1) Consider manner of realizing countermeasures. Prioritized.

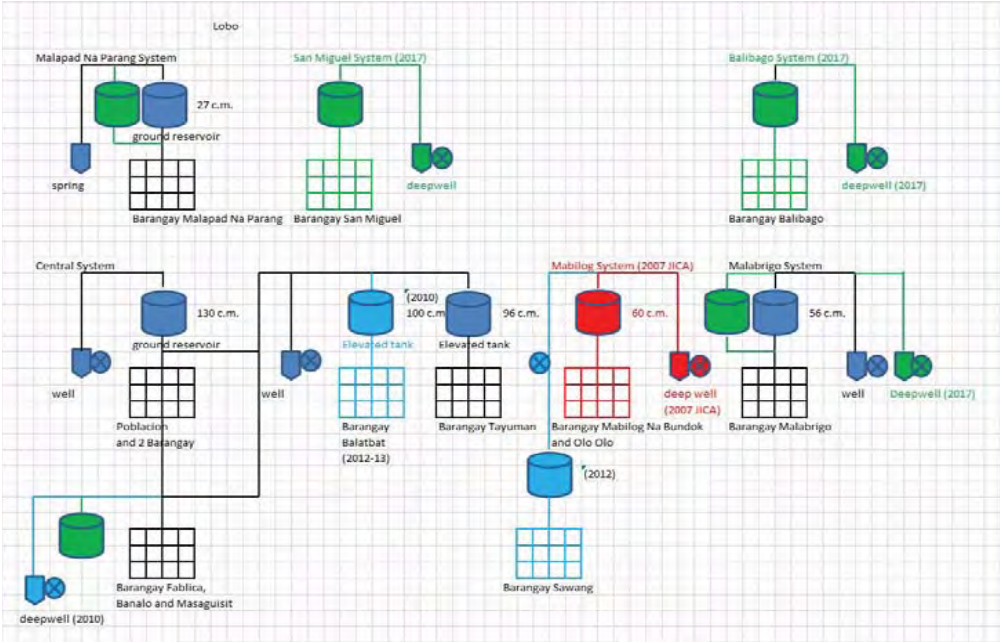
(2) Conduct conceptual design, if construction of facility is necessary, such as pipeline expansion, intake facility, transmission and distribution line, reservoir, pumping station, etc.

(3) Conduct cost estimation

(4) Make it to facility improvement plan. Facility improvement plan including at least, necessary facility, target capacity, cost, timeframe, number of connections, average consumption volume.

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

Facility improvement plan sample



(1) Medium Term Stage-1 Improvement Plan (already completed)

1) Intake Facilities
- Installation of submersible pump
- Construction of pump house
- Installation of flow meter
- Installation of generator set

2) Storage Facility
- Construction of concrete ground reservoir with 60 cubic meters capacity

3) Transmission Facility
- Installation of 50 meters of 100 mm and 50 meters of 75mm transmission lines

4) Disinfection equipment
- Installation of one hypochlorinator

5) Water Distribution Facility
- Installation of PVC distribution pipe lines with a total length of 1,260 m of 100mm, 600 m of 75 mm,1,540 of 50mm will be installed.

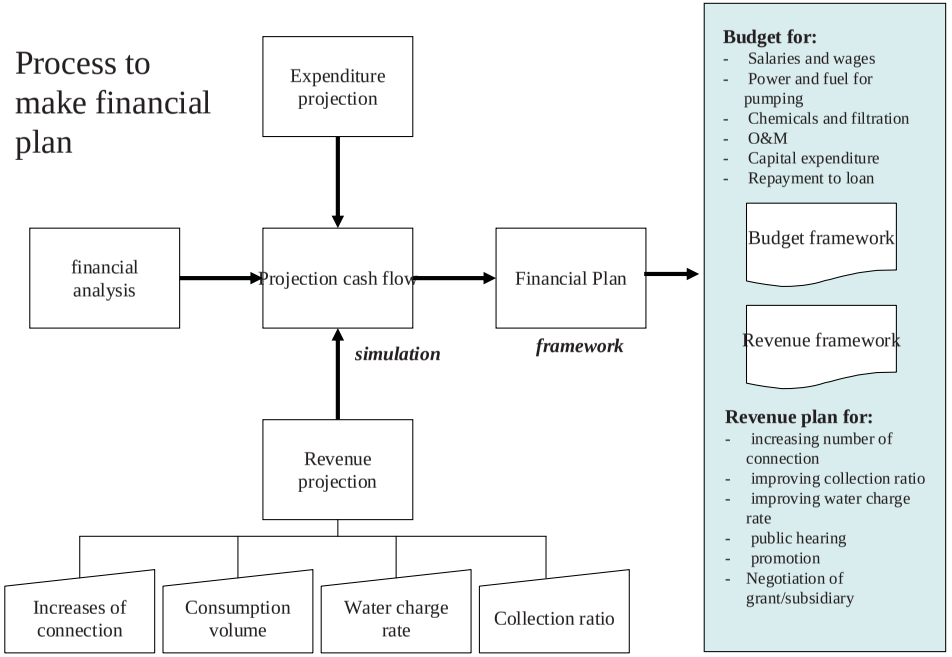
6) Service connections
- Installation of 202 new service connections

Cost is 5.7 million Pesos provided by JICA Grant aid

Table 6.6.1 Cost Estimates

Items	Quanitity	Unit	Unit Cost	Total
hypo chlorinator	1	set	62,500	62,500
flow meter	1	set	40,500	40,500
pump house	9	m2	8,500	76,500
Submersible pump	1	ls		547,000
Generator (Mabilog for new well)	1	ls		588,000
RSV	60	m3	16,650	999,000
D. Pipelines				
100mm PVC pipes (trans)	50	m	655	32,750
75 mm (trans)	50	m	460	23,000
100mm PVC pipes (distri)	1260	m	655	825,300
75 mm (distri)	600	m	460	276,000
50mm PVC pipes (distri	1540	m	280	431,200
valves and fittings (20% of Pipeline cost)				317,650
Service connections	340	sc	1,500	510,000
Sub-Total				4,729,400
CONSTRUCTION COST				**4,729,000**

1. Water Demand Projection
2. Issues and problems
3. Facility improvement plan
4. Financial analysis and feasibility study of capital investment
   (1) Projection of expenditure
   (2) Projection of revenue



Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

(1) Projection of expenditure

(1) Confirm number of connection by year
- increasing by facility improvement
- natural increasing

(2) Project necessary number of staff
- e.g. in Philippines, 120-200 connection per staff

(3) Project salaries and wages by year

(4) Confirm pumps and other power consumption facility (e.g. submersible pump, booster pump) and their power consumption

(5) Project power cost and also project fuel cost for pumping

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

(1) Projection of expenditure

(6) Confirm production volume and facility of purification and filtration

(7) Project chemical cost for purification and filtration by year

(8) Project other operation and maintenance cost

- Now you know O&M cost

(9) Confirm facility improvement plan

(9) Confirm necessary capital investment cost

- Now you know capital investment cost

(10) If you have loan and also consider loan for arrange necessary capital investment cost, project financial cost by year

- Now you know expenditure

Draft at 09/30/07 © copy right Toru Suetake, JFRC Tokyo Office

(2) Projection of revenue

(1) Confirm production volume, NRW and number of connections by year

(2) Calculate and decide average consumption volume per connection

(3) Project collection efficiency

(4) Calculate necessary water rate for cover necessary expenditure

(5) Decide water rate

(6) Project revenue from sales of water

(7) Project revenue from others (but in operational)

(2) Projection of revenue

(8) Consider mode for arrange necessary financial resources, if increasing water rate can not cover. Financial resources arrangement is not so easy works. Many water supply system cannot do improvement for this reason, shortage of financial resources and fail to arrange. If grant or subsidiary would be expected, that is fine.

(9) Project revenue from financial activity, such as interest income.

- Now you know expected revenue

(2) Projection of revenue

- Feasibility study

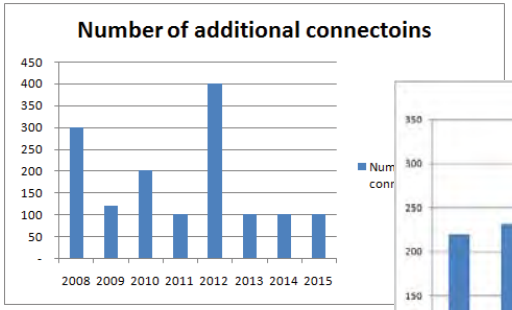
(10) Confirm balance and possibility of cash shortage. If it would be happen, back to first step and consider possibility to increasing revenue and/or reducing expenditure. Mostly, capital investment makes negative cash balance and you may need to reduce capital investment amount for meet your financial capability. Also limitation to increasing water rate makes limitation of revenue and makes difficult to do facility improvement.

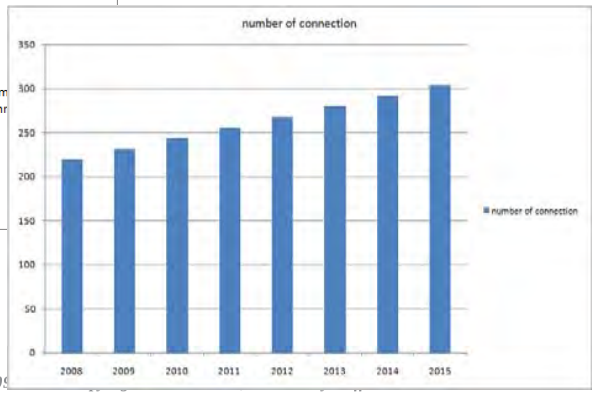
(11) If in that case, you must ask your engineer to change scope of work on the facility improvement plan or suggest to postpone until financial capability become meet.

- Financial plan sample

Increasing Connection Plan for achieving Stage-2

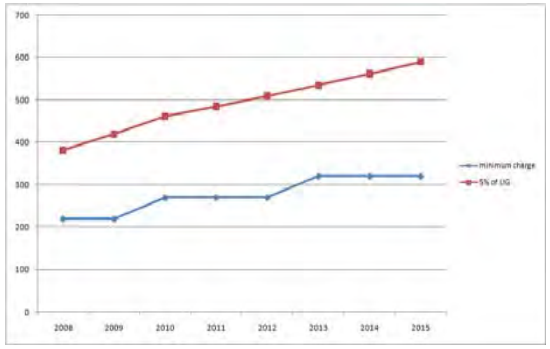
	2008	2009	2010	2011	2012	2013	2014	2015
number of connection	1,511	1,811	1,931	2,131	2,231	2,631	2,731	2,831
Number of additional connectoins	300	120	200	100	400	100	100	100





Water Rate Improvement Plan To Realize Stage-2

	2008	2009	2010	2011	2012	2013	2014	2015
minimum charge	220	220	270	270	270	320	320	320
commodity charge	23.0	23.0	28.0	27.0	27.0	33.0	33.0	33.0
5% of LIG	382	420	462	485	509	535	562	590

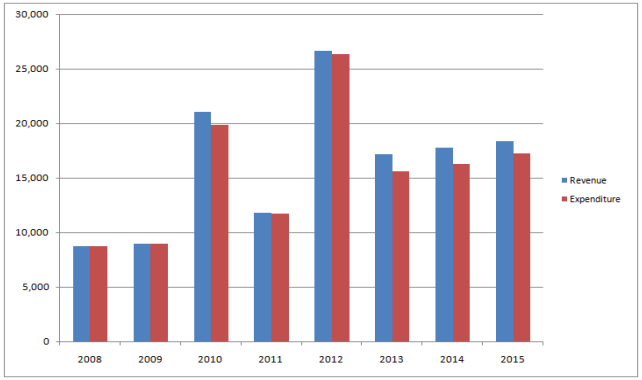


5% of LIG: 5% of average house income for Low Income Group

Revenue and Profit Plan to achieve Stage-2

	2008	2009	2010	2011	2012	2013	2014	2015
Revenue	8,752	8,933	21,062	11,800	26,619	17,156	17,772	18,387
Expenditure	8,703	8,933	19,845	11,719	26,320	15,579	16,237	17,272
- Operation and maintenance	7,983	8,413	8,878	9,704	11,132	11,760	12,387	13,391
- Capital Investment	438	447	10,893	590	13,763	858	889	919
- Repayment to loan and arrears	282	74	74	1,425	1,425	2,961	2,961	2,961
Cash Based Profit/loss	50	-0	1,217	81	299	1,577	1,535	1,115

Unit: ,000 Pesos



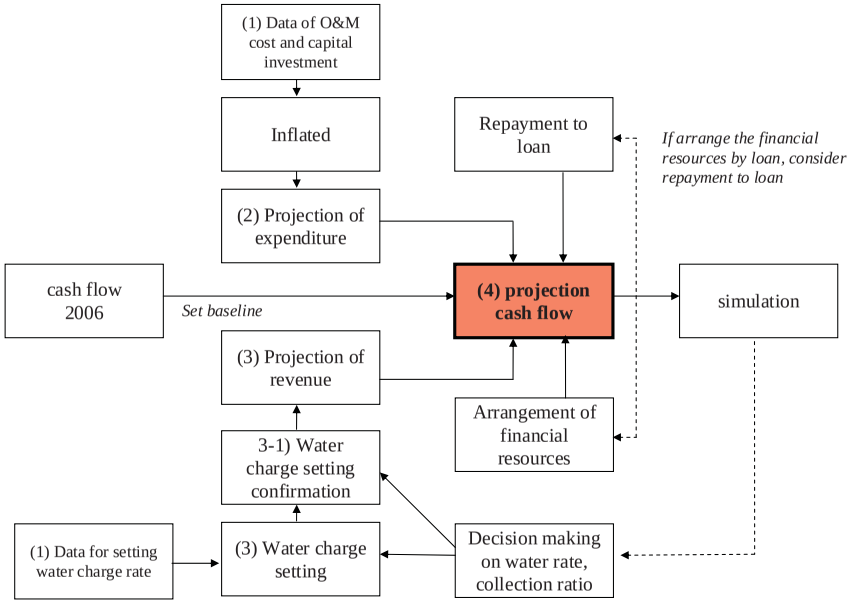
Revenue in 2010 and 2012 including loan disbursement expected from LWUA and capital investment

Financial Arrangement Plan

1. Loan for 9.4 million Pesos in 2010 (90% of construction cost)
   7.5% 10 years
2. Loan for 10.7 million Pesos in 2012 (90% of construction cost)
   12.5% for 26 years

- Financial plan additional explanation

projection of cash flow



Projection cash flow

A) Operational activity	
1) Revenue	
1-1) revenue from sales of water	
1-2) other revenue	
2) Operational disbursement	
2-1) Salaries	
2-2) Power and fuel for pumping	
2-3) Chemical and filtration for purification	
2-4) other O&M cost	
B) Capital investment activity	
5) Capital revenue	
6) Capital expenditure	
C) Financial activity	
7) Loan	
8) Repayment to loan and arrears	
9) Cash flow balance (revenue – expenses)	

This is sample and you can modify for your objectives.

F1) How to project expenditure?

Projection of Expense

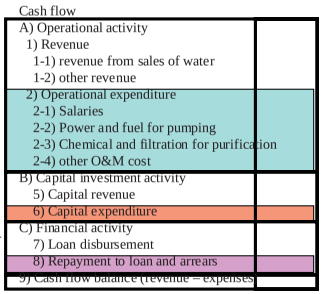
a) Expenditure for Operational activity

a-1) Salaries and wages

a-2) Power and fuel for pumping

a-3) Chemicals and filtration for purification

a-4) other Operation and Maintenance cost



b) Expenditure for Capital Investment

b-1) capital investment for large scale improvement

b-2) small scale rehabilitation, expansion, repair (accounting rules)

c) Repayment to loan and arrears

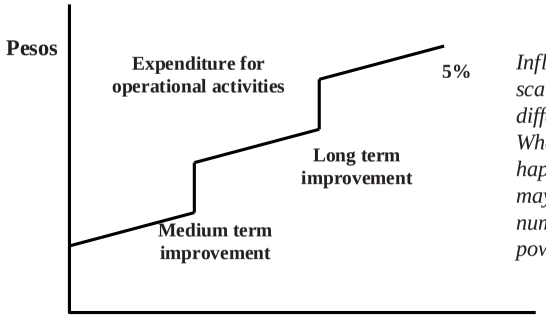
a) Expenditure for Operational activity

a-1) Salaries and wages
- calculate number of staff and average standard salary

a-2) Power and fuel for pumping
- calculate inflated value (e.g. assumes as 7%)

a-3) Chemicals and filtration for purification
- calculate inflated value (e.g. assumes as 5%)

a-4) Other Operation and Maintenance cost
- Calculated inflated value + contingency (3-5%)



Inflating (e.g. 5%) until large scale investment makes different O&M structure. When large scale investment happen, O&M cost structure may change. (e.g. increasing number of staff or increasing power cost)

Large scale capital investment sometimes changes the structure of operational expenditure

Sample of centralized computer control system, Tokyo Metropolitan waterworks

	Case-1: Large scale investment for expansion that increasing 2 booster pump and 10 operators	Case-2: Large scale investment for centralized control reduce the number of operator
	Number of staff: +10 Pump: +2	**Number of staff: -50** Pump: +10
Number of staff: 500 Pump: 10 Chlorinator: 8	Number of staff: 500 Pump: 10 Chlorinator: 8	Number of staff: 500 Pump: 10 Chlorinator: 8

1. Concept of O&M cost estimation

1) Salaries and wages

Salaries and wages = number of staff * average salaries

Number of staff = number of connection / 120

Average salaries = .(expense for personal services) / number of staff in 2006

note: salaries and wages should be standardized amount

120 connections per staff is normal standard in Philippines

2) Pumping cost

.(pump * normal power consumption)

3) Chemical and filtration cost

.(chlorinator * normal chemical consumption)

4) Other O&M

administration cost = number of staff * average administration cost per head in baseline year

+ office-work cost (computer, stationary, and other office consumption items)

+ contingency cost

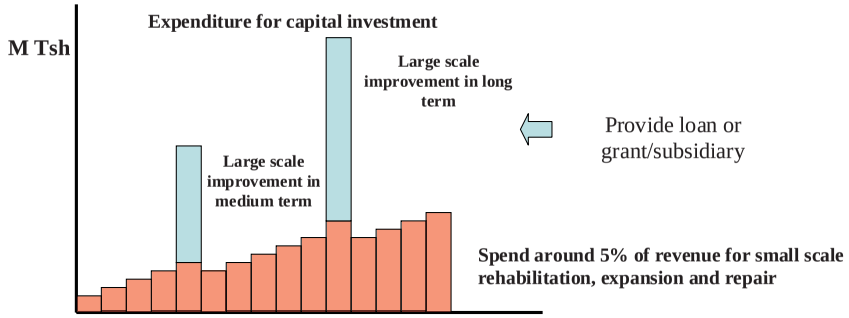
+ major other O&M cost

b) Expenditure for Capital Investment

b-1) capital investment for large scale improvement

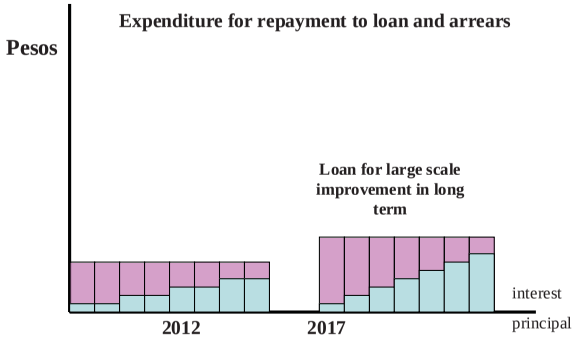
b-2) small scale rehabilitation, expansion, repair

- b-1) estimated cost of master plan and inflated (e.g. inflate 5%)
- b-2) 5% of revenue (almost equal as depreciation) if not exist sufficient rehabilitation plan

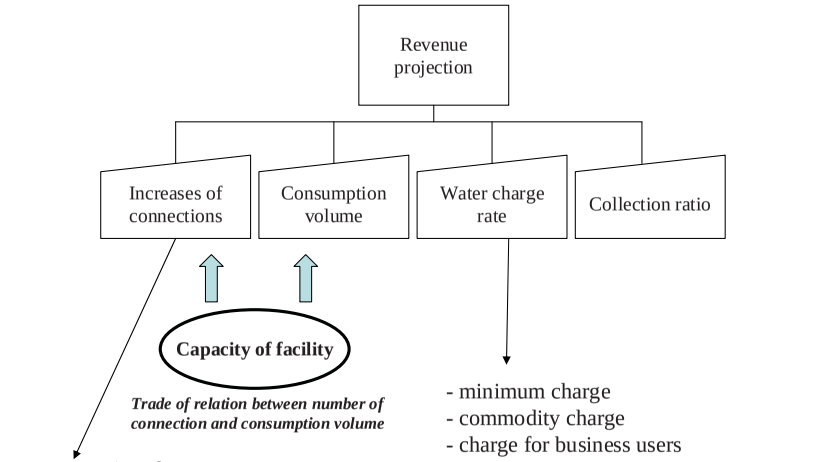


c) Repayment to loan and arrears *(just for your information)*

- calculate based on loan amount and interest rate
- repayment amount (total of principal plus interest for return) is same in the return period
- However, before borrow new loan, you need to return remained loan and restructuring loan may adapted, if you has existing loan and arrears.



F2) How to project revenue?



Projection of revenue from sales of water

a) Number of connection
- promotion makes increasing
- limitation from capacity of water supply system

b) Monthly average consumption volume per connection
- limitation from capacity of water supply system

c) Monthly average water charge
- change for meet to financial demand
- charge should not exceed 5% of house income for low income group in Philippines

d) Monthly average collection ratio
- reach to 95% (standard)

Cash flow	
A) Operational activity	
1) Revenue	
1-1) sales from water sales	
1-2) other revenue	
2) Operational expenditure	
2-1) Salaries	
2-2) Power and fuel for pumping	
2-3) Chemical and filtration for purification	
2-4) other O&M cost	
B) Capital investment activity	
5) Capital revenue	
6) Capital expenditure	
C) Financial activity	
7) Loan disbursement	
8) Repayment to loan and arrears	
9) Cash flow balance (revenue – expenses)	

Setting monthly average water charge (2/5)

a) Monthly average charge for meet financial demand

$a = e / (n * 12 \text{ months} * r)$

a: monthly average charge for meet financial demand
e: total expenditure
n: number of connection
r: monthly average water collection ratio

total expenses including:
- new O&M cost
- existing repayment to loan
- new repayment to loan
- 5-10 percent of construction management cost

Setting monthly average water charge (3/5)

b) Monthly average water charge that inflate present charge
- inflates present monthly average water charge (5%)

b = pc * (1.05) ^ year

b : monthly average water charge that inflate present charge
pc : present monthly average water charge

- Please refer water rate calculation manual provided from Soft Component Program for setting sufficient water rate

Setting monthly average water charge (4/5) in Philippines

c) Monthly average water charge with income ceiling
- 5% of average house income as minimum charge

c = (min + com * (cons – 10)) * r

c : monthly average water charge with income ceiling
min: minimum charge as “5% of average house income
com : commodity charge
cons : monthly average consumption volume per connections
r: monthly average water collection ratio
com = min * ratio
ratio = unit commodity charge / unit minimum charge

CONCEPT AND OBJECTIVE OF BUSINESS PLAN

IDEAL STATUS

- Ideal status is explained with Mission and Vision
- Mission is what WUSC must do like to provide safe water to maximum people in a reasonable price and stable manner
- Vision is what WUSC want to be in the future for e.g. be the best service provider in NEPAL by 20 years.

MANAGEMENT MODEL OF WUSC

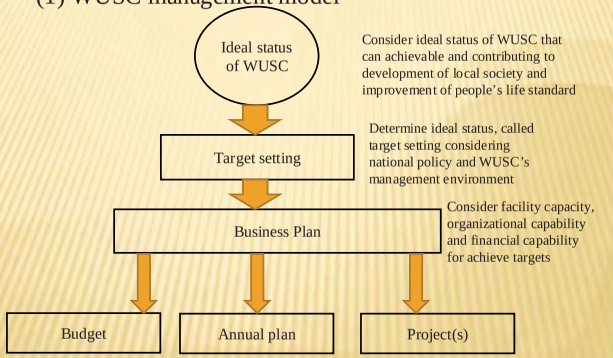
Ideal state of WUSC

To provide safe water affordably in stable manner to maximum people in their jurisdiction with reasonable cost

- For realizing this status,WUSC must set target step by step
- For e.g.: provide safe water to 75% people in jurisdiction after 10 years
- The means for achieving this ideal status is

BUSINESS PLAN

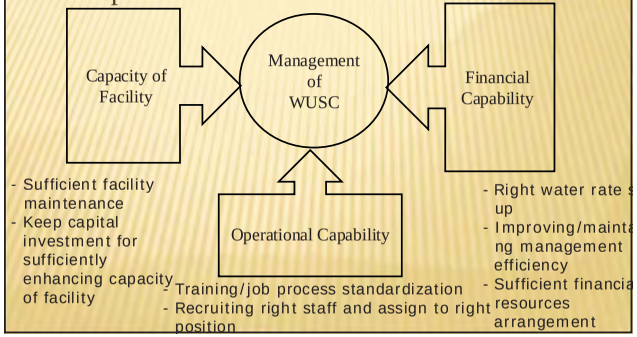
(1) WUSC management model

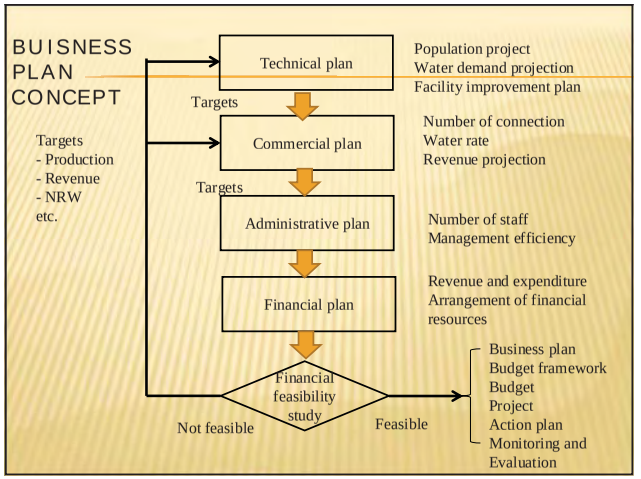


CONCEPT OF BUSINESS PLAN

FOR REALIZING THIS IDEAL STATUS

It may necessary to enhancing 3 capabilities with plan





TECHNICAL PLAN

- Main aim of technical plan to know whether existing facility meet the water demand or not
- If not we suggest them for facility improvement (for eg:construction of new bore well, installation of generator),here we can help WUSC to make cost estimation
- This information should be shown in business plan
- The capital cost and O and M cost are also shown in the plan

TECHNICAL PLAN

- (1) Technical planning
- 1) Projection of population:
- = BP*(1+PG)

- BP: baseline population, normally VDC data, census
- PG: population growth rate, VDC data, census

A: Engineering plan	unit	Base line	2013	2014	2015	2016
(1) Population		14,000	14,700	15,435	16,207	17,017
(2) Population growth	%	5.0%	5.0%	5.0%	5.0%	5.0%

PROCEDURE TO FORMULATE BUSINESS PLAN

TECHNICAL PLAN(SOME INFORMATION)

- We can make the plan for mid term(5 years) or for 10 years(long term) or 15 years
- We should collect the population data from past 5 years /10 years to know the trend of population growth rate.
- This information may be collected from VDC(village development committee)

TECHNICAL PLAN

(1) Technical planning
2) Coverage ratio and population served:
PS = PoP*SC

PS: population served
PpP: population
SC: Service coverage, decide based on policy

A: Engineering plan	unit	Base line	2013	2014	2015	2016
(1) Population		14,000	14,700	15,435	16,207	17,017
(2) Population growth	%	5.0%	5.0%	5.0%	5.0%	5.0%
(3) Coverage ratio	%	60%	60%	61%	62%	63%
(4) Population served		8,400	8,820	9,415	10,048	10,721
- domestic customer		8,400	8,820	9,415	10,048	10,721
- non domestci customer		0	0	0	0	0

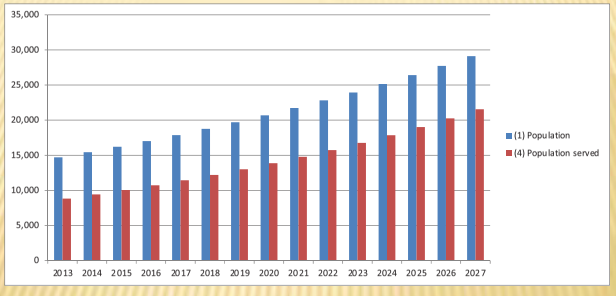
TECHNICAL PLAN

PRESENT POPULATION SERVED = NUMBER OF ACTIVE CONNECTION * ANHM

ANHM = AVERAGE NUMBER OF HOUSE MEMBER, VDC CAN PROVIDE THIS INFORMATION

TECHNICAL PLAN(SOME INFORMATION)

- Service coverage ratio depends upon political condition
- Better to determine for first five years(mid term) ,then ten years(long term) ,15 years(far long term) then adjust to annual base ,e.g if present is 60%,set mid term target as 65% and long term as 70% and far long term as 75%



(1) Technical planning
3) Water demand:
= PS*C
PS: population served
C: Consumption, normally consumption per capita per day, decide by policy
60 l/d/c is minimum, and standard is 105 l/d/c

A: Engineering plan	unit	Base line	2013	2014	2015	2016
(1) Population		14,000	14,700	15,435	16,207	17,017
(2) Population growth	%	5.0%	5.0%	5.0%	5.0%	5.0%
(3) Coverage ratio	%	60%	60%	61%	62%	63%
(4) Population served		8,400	8,820	9,415	10,048	10,721
- domestic customer		8,400	8,820	9,415	10,048	10,721
- non domestci customer		0	0	0	0	0
(5) Consumption/capita/day	litter	65	66	67	68	69
- domestic customer		65	66	67	68	69
- non domestci customer		0	0	0	0	0
(6) Water Demand	cm/day	546	582	631	683	740
- domestic customer		546	582	631	683	740
- non domestci customer		0	0	0	0	0

SOME OF THE EXAMPLES OF NON DOMESTIC CONSUMER

- In case of salakpur,WUSC provide water for animals such as :
- 30 litre/day/cow,15 litre/day/goat and sheep and 5 litre/day/chicken
- In chandragadhi,WUSC provide water to hospitals,schools etc

TECHNICAL PLAN(SOME INFORMATION0

- 65 LPCD IS MINIMUM FOR SUSTAINING HUMAN LIFE
- IN STANDARD,105 LPCD IS TARGET FOR DEVELOPING COUNTRY
- TECHNICAL PLAN AIMS TO INCREASE THE CONSUMPTION e.g:if present water consumption per day per capita is 65 litre, they decide to make 69 after 5 years by annually increasing by 1 litre and this is shown in this plan
- WATER DEMAND CONSISTS OF DOMESTIC AND NON-DOMESTIC CONSUMER;NON DOMESTIC LIKE HOTELS,INDUSTRIES ETC

(1) Technical planning
4) Consider capacity of facility and water demand
- If capacity would be less than demand, need enhancement

FC = Prd*(1-NRW)

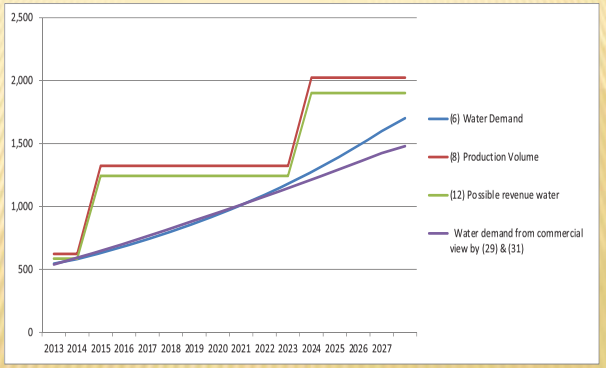
FC: Capacity of facility for provide water
Prd: Production volume
NRW: Non Revenue Water

FC is more than water demand or not?

A: Engineering plan	unit	Base line	2013	2014	2015	2016
(1) Population		14,000	14,700	15,435	16,207	17,017
(2) Population growth	%	5.0%	5.0%	5.0%	5.0%	5.0%
(3) Coverage ratio	%	60%	60%	61%	62%	63%
(4) Population served		8,400	8,820	9,415	10,048	10,721
- domestic customer		8,400	8,820	9,415	10,048	10,721
- non domestci customer		0	0	0	0	0
(5) Consumption/capita/day	litter	65	66	67	68	69
- domestic customer		65	66	67	68	69
- non domestci customer		0	0	0	0	0
(6) Water Demand	cm/day	546	582	631	683	740
- domestic customer		546	582	631	683	740
- non domestci customer		0	0	0	0	0
(7) Intake Water Volume	cm/day	623	623	1,323	1,323	1,323
(8) Production Volume	cm/day	623	623	1,323	1,323	1,323
(9) UFW	%	5%	5%	5%	5%	5%
(10) Accounting water	cm/day	592	592	1,257	1,257	1,257
(11) NRW	%	6%	6%	6%	6%	6%
(12) Possible revenue water	cm/day	586	586	1,244	1,244	1,244
(13) Facility improvement (*1)	,000 RP			3,700	725	
(14) Preventing maintenance (*1)	,000 RP				2,000	
(15) sub total of capital investment (*1)	,000 RP	0	0	3,700	2,725	0

TECHNICAL PLAN(SOME INFORMATION)

- The water demand might be scarcity at some year,in that period may advise on facility improvement such as: construction of new bore well, new submersible pump, generetor,pipeline extension etc.
- The cost estimation of these capital cost should be mentioned on the plan(WUSC Usually donot have knowledge of cost estimation, so we can advise them)
- In this year, require huge investment called capital cost ,WUSC have to arrange financial resources from DO OR DWSS



(1) Technical planning
5) Cost estimation of facility improvement

(1) Facility improvement of 2014			
Items	Quantity	Unit Cost	Cost
1) Drilling of new well	1	2,000	2,000
2) submersible pump	1	400	400
3) Booster pump	1	300	300
4) Graund reservor	1	1,000	1,000
5) transmission line	4,000	0.28	1,120
6) pipe fitting (20%)			224
7) Contingency (25%)			1,261
total			3,700
8) 50% cost share			1,850
Unit: ,000 NR			
Cost may necessary for reviewed and updated			

TECHNICAL PLAN(SOME INFORMATION)

- Usually large scale rehabilitation and maintenance is done in every 10 years.
- The Life of submersible pump and generator is generally 10 years
- For facility rehabilitation and maintenance require large cost and it should be located on technical plan

A: Engineering plan	unit	Base line	2013	2014	2015	2016
(1) Population		14,000	14,700	15,435	16,207	17,017
(2) Population growth	%	5.0%	5.0%	5.0%	5.0%	5.0%
(3) Coverage ratio	%	60%	60%	61%	62%	63%
(4) Population served		8,400	8,820	9,415	10,048	10,721
- domestic customer		8,400	8,820	9,415	10,048	10,721
- non domestic customer		0	0	0	0	0
(5) Consumption/capita/day	liter	65	66	67	68	69
- domestic customer		65	66	67	68	69
- non domestic customer		0	0	0	0	0
(6) Water Demand	cm/day	546	582	631	683	740
- domestic customer		546	582	631	683	740
- non domestic customer		0	0	0	0	0
(7) Intake Water Volume	cm/day	623	623	1,323	1,323	1,323
(8) Production Volume	cm/day	623	623	1,323	1,323	1,323
(9) UFW	%	5%	5%	5%	5%	5%
(10) Accounting water	cm/day	592	592	1,257	1,257	1,257
(11) NRW	%	6%	6%	6%	6%	6%
(12) Possible revenue water	cm/day	586	586	1,244	1,244	1,244
(13) Facility improvement (*1)	,000 RP			3,700	725	
(14) Preventing maintenance (*1)	,000 RP				2,000	
(15) sub total of capital investment (*1)	,000 RP	0	0	3,700	2,725	0
(16) Inflated capital investment	,000 RP		0	4,079	3,155	0
(17) Inflation rate	%	5%	5%	5%	5%	5%
(18) Indicator for inflation		0	1	2	3	4
(19) Increases of power cost (*1)	,000 NR	dummy		400		
(20) Inflated (19)	,000 NR	dummy		441	0	
(21) Power and fuels For pumping	,000 NR	732	769	1,248	1,310	1,376
(22) Increases of chemical cost (*1)	,000 NR	dummy	0		0	
(23) Inflated (22)	,000 NR	dummy	0		0	
(24) Chemical for production	,000 NR	0	0	0	0	0
(25) Increases of spare parts, repair, maint	,000 NR	dummy		30		
(26) Inflated (25)	,000 NR	dummy		32	0	
(26) Spare parts, repair and maintenance	,000 NR	68	71	106	112	117
(27) O&M cost excluding salaries and ad	,000 NR	800	840	1,355	1,422	1,493

(1) Technical planning

6) O&M cost

- **If facility is improved, O&M cost would be changed, more power and fuel for pumping cost, more chemical, and may need more pump operator**

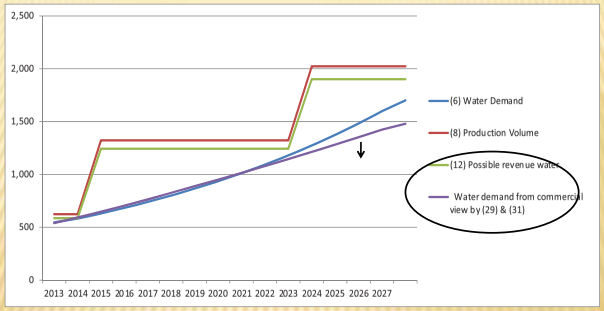
COMMERCIAL PLAN

(2) Non-technical planning

1) Number of connection

- Up to capacity of facility, it could possible to increasing

B: Customer service plan	unit	Base line	2013	2014	2015	2016
(28) Number of additional connection		dummy	100	100	100	100
(29) Number of active connection		1,189	1,289	1,389	1,489	1,589

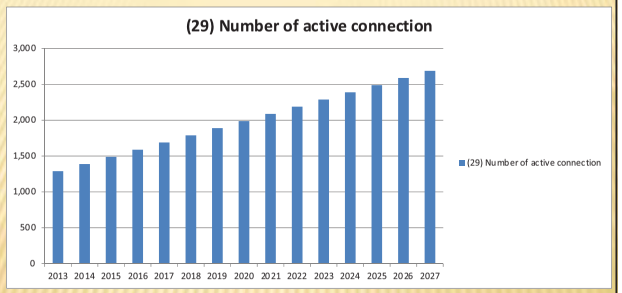


Water demand based on number of connection

COMMERCIAL PLAN(SOME INFORMATION)

- We need to know the trend of increment of connection from past 5 years data

B: Customer service plan	unit	2007	2008	2009	2010	2011	2012	baseline
(28) Number of additional connection		0	350	240	240	240	119	
(29) Number of active connection			350	590	830	1,070	1,189	1,189



COMMERCIAL PLAN(CUSTOMER SERVICE PLAN)

- Commercial plan mainly focus on additional connection and water rate and based on this revenue from sales of water is calculated
- This information is very important for financial plan
- Design of water rate is link with financial plan

COMMERCIAL PLAN(SOME INFORMATION)

- Water rate is decided by minimum and commodity charge
- Example: Jhapa adapts 8 cubic meter and Morang adapts 10 cubic meter as minimum charge

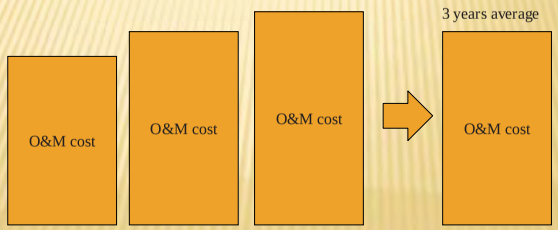
(2) Non-technical planning
2) Water rate and revenue from sales of water
- Minimum charge coves fixed cost
- Commodity charge covers flexible cost
- Cost including depreciation

RevS = ((Min + Com*(Con-10))*NoC)*ColE*12 months

RevS: Revenue from sales of water
Min: Minimum charge
Com: Commodity charge
Con: average monthly consumption volume per connection
NoC: Number of connection
ColE: Collection efficiency

AI: adjustment for inflation and increases of cost in future

- Using 3 years average O&M cost for target to be recover and setting water rate to 3 years (e.g.)

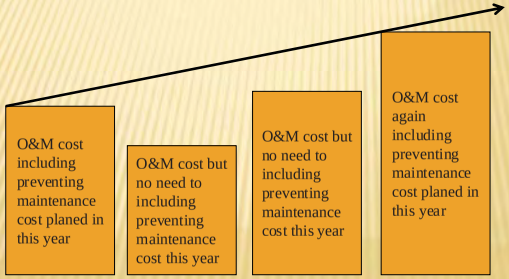


COMMERCIAL PLAN(SOME INFORMATION)

- While setting water rate, avoid fluctuation in water rate
- e.g. If the O and M cost is increasing every 3 years continuosly,then set the water rate average of 3 years and increasing every 2 years
- Rapid increase in water rate might leads to the user complaint and negative impression about WUSC
- Water rate setting should maintain positive cash balance at the end, if not change the water rate

AS: adjustment for avoid rapid fraction of water rate

- Smoothing and avoid rapid increases, ideally increasing stable ratio, e.g. 3% by every two years



COMMERCIAL PLAN(SOME INFORMATION)

- Water rate should be set and increased such that revenue from sales of water cover O and M cost
- But for large capital investment revenue from sales of water might not be enough, in that case they contribute 10% and for 90%,they can take grant from DWSS/DO/VDC
- This grant cost should be also located on business plan

COMMERCIAL PLAN

B: Customer service plan	unit	Base line	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
(28) Number of additional connection		dum my	100	100	100	100	100	100	100	100	100	100
(29) Number of active connection		2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
(30) Average family size	person/family	5	5	5	5	5	5	5	5	5	5	5
(31) Avr. consumption per connection	**cm/month**	**11**	**12**	**12**	**12**	**12**	**13**	**13**	**13**	**14**	**14**	**14**
(32) Confirmation of (31) with (5)	cm/month	11	12	12	13	13	14	14	14	15	15	16
(33) Minimum charge volume	cm/month	10	10	10	10	10	10	10	10	10	10	10
(34) Water rate (minimum charge)	**NR**	**100**	**100**	**100**	**110**	**110**	**120**	**120**	**140**	**140**	**160**	**160**
(35) Water rate (commodity charge 10-25)	**NR**	**12**	**12**	**12**	**14**	**14**	**16**	**16**	**18**	**18**	**20**	**20**
(35) Water rate (commodity charge 21-30)	**NR**	**14**	**14**	**14**	**20**	**20**	**24**	**24**	**28**	**28**	**32**	**32**
(36) Collection efficiency	**%**	**98%**	**98%**	**98%**	**98%**	**98%**	**98%**	**98%**	**98%**	**98%**	**98%**	**98%**
(37) Expected monthly revenue from sales of water	,000 NR/month	220	255	267	311	325	412	428	513	582	682	706
(38) Expected annual revenue from sales of water	,000 NR/year	2,634	3,062	3,208	3,733	3,895	4,939	5,137	6,160	6,981	8,185	8,467
Water demand from commercial view by (29) & (31)	cm/day	733	840	880	920	960	1,083	1,127	1,170	1,307	1,353	1,400

ADMINISTRATIVE PLAN

ADMINISTRATIVE PLAN

- Focus on number of staff considering labor efficiency and maintaining quality of services
- If staff is shortage, quality is drop, if over staffed, effect management efficiency

ADMINISTRATIVE PLAN

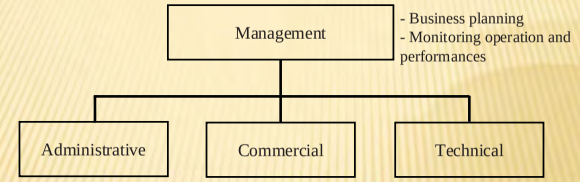
Non-technical planning

- 4) Staffing
- - Based on requirement for facility operation
- - Based on job flow standardization (including computerization)
- - Based on organizational standardization
- - Based on labor efficiency
- - not makes over loading to staff, for maintaining quality of work
- - not too much staff
- - 120 to 200 connections per staff

ADMINSTRATIVE PLAN

- First decide how many number of technical staff(pump operator,plumber,engineer) is required depending on facility but in case of WUSC of NEPAL engineer is not yet recruited.
- Decide how many number of customer service clerk(meter reader, plumber for connection, cashier) is required and also determine administrative clerk(store keeper,security,gardener etc)
- It may be recommendable to control the staff to obtain the labor efficiency such as per staff connection should be between 120 and 200,if per staff number of connection is less than 120,it may be overstaff or exceeds 200 might be staff shortage

Functions and functional capability



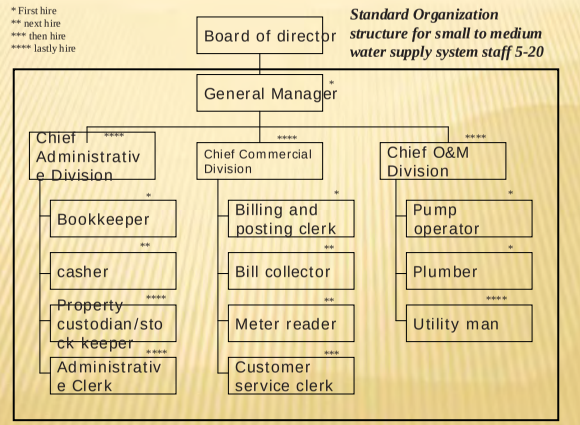
- Administrative planning
- Control staff
- Control asset
- Control expenses

- Commercial planning
- Provide service
- Collecting money for service and products

- Engineering planning
- Constructing facility
- Operating and maintaining facility

AMINISTRATIVE PLAN(SOME INFORMATION)

- Similarly this plan included inflated salaries and inflated administrative cost
- Increasing salaries can be also include in this plan, it is basically decided when number of staff is increased



C: Administrative plan	unit	Base line	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
(39) Increases of staff			0							1		1
(40) Number of staff		13	13	13	13	13	13	13	13	14	14	15
(41) Increasing salaries	NR/staff		0	0	0	0	0	0	0	216	0	239
(42) Inflated (41)	,000 NR/year	dummy	0	0	0	0	0	0	0	227	0	251
(43) Salaries and wages	,000 NR/year	2,000	2,100	2,205	2,315	2,431	2,553	2,680	2,814	3,182	3,341	3,759
(44) Increases admi cost (*1)	,000 NR/year		20	23	27	31	36	41	47	55	63	73
(45) Inflated (44)	,000 NR/year	dummy	21	24	28	32	37	43	50	58	67	77
(46) Administrative cost	,000 NR/year	200	231	267	308	356	411	475	548	633	732	845
(47) subtotal of salaries and admi cost	,000 NR/year	2,200	2,331	2,472	2,623	2,787	2,964	3,155	3,363	3,816	4,073	4,604
Connections per staff	#/staff	154	162	169	177	185	192	200	208	200	207	200

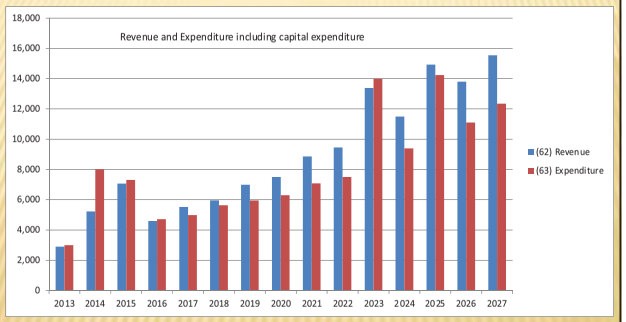
FINANCIAL PLAN

D: Financial plan	unit	Base line	2013	2014	2015	2016	2017
(48) Revenue from sales of water	,000 NR/	1,851	2,228	2,450	3,250	3,536	4,251
- domestic customer		1,851	2,228	2,450	3,250	3,536	4,251
- non domesti customer							
(49) Revenue from others	,000 NR/	579	668	735	975	1,061	1,275
(50) Revenue from operational activity	,000 NR/	2,430	2,897	3,185	4,225	4,596	5,526
(51) Salaries	,000 NR/	733	1,968	2,361	2,479	2,929	3,075
(52) Power	,000 NR/	732	769	1,248	1,310	1,376	1,445
(53) Chemicals	,000 NR/	0	0	0	0	0	0
(54) Spare parts, maintenance and repair	,000 NR/	68	71	106	112	117	123
(55) Other O&M and administration	,000 NR/	682	193	223	257	297	343
(56) Expenditure for operational activity	,000 NR/	2,215	3,001	3,938	4,159	4,719	4,986
(57) Cash balance of operational activities	,000 NR/	215	-104	-753	66	-123	540
(58) Revenue for capital investment	,000 NR/	188	0	2,040	2,839	0	0
(59) Capital expenditure	,000 NR/	0	0	4,079	3,155	0	0
(60) Revenue from financial activity	,000 NR/	140					
(61) Financial cost	,000 NR/	9					
(62) Revenue	,000 NR/	2,758	2,897	5,225	7,064	4,596	5,526
(63) Expenditure	,000 NR/	2,224	3,001	8,018	7,313	4,719	4,986
(64) Cash balance	**,000 NR**	**534**	**-104**	**-2,793**	**-249**	**-123**	**540**
(65) End balance	**,000 NR**	**3,286**	**3,182**	**389**	**140**	**17**	**557**

Non-technical planning

5) Financial plan

- Expenditure:
  - Capital investment (facility improvement)
  - Operation and maintenance cost (salaries, power and fuel of pumping, chemical for purification, spare parts, repair and maintenance and office management cost)
  - Financial cost, if any
- Revenue
  - Sales of water and other operational revenue
  - grant, subsidiary
  - loan disbursement



Non-technical planning

6) Financial resources arrangement

- Grant (in many case)
- Zero interest loan
- Low interest loan
- Deposit

- Share hold among members

50% vs. 50% in Shalakpur WUSC

60% vs. 40% in Urlabari WUSC

after 3 years of construction project accomplished, share 50% of the profit with share holder and WUSC

FINANCIAL PLAN(SOME INFORMATION)

- Expenditure is escalating with inflation rate (though adjust when in capital investment and when increasing number of staff)
- - 10% equity contribution is required as minimum condition for grant from DWSS
- -10% grant may expected as construction when WUSC try to construct by themselves

FINANCIAL PLAN(SOME INFORMATION)

- Financial plan mainly focus on revenue and expenditure, revenue of sales of water but it may not be sufficient mainly during capital investment, so in this case may required grant or loan
- If WUSC take loan, financial cost is emerged and should be included in financial plan
- End balance may better keep at least 3-5% positive against revenue from sales of water (this is cash on hand for emergency)

FINANCIAL PLAN

- Financial feasibility is checked with end balance, if not feasible re check the technical plan and commercial plan
- Change the scope of activities such as: postponed of pipeline extension of pipeline for certain year etc
- Postponed the facility improvement plan change the scope of capital investment
- Increase water rate

- After financial plan becomes feasible, compile all the data and BUSINESS PLAN is prepared
- BUSINESS PLAN is implemented in terms of budget framework, project etc
- Business plan should be reviewed such that it is implemented in right truck or not, it can be done through MONITORING AND EVALUATION

THANK YOU


Dhulabari Site Survey Report
November 15, 2011


Intake Site


Intake Site


Intake Site


Intake Site

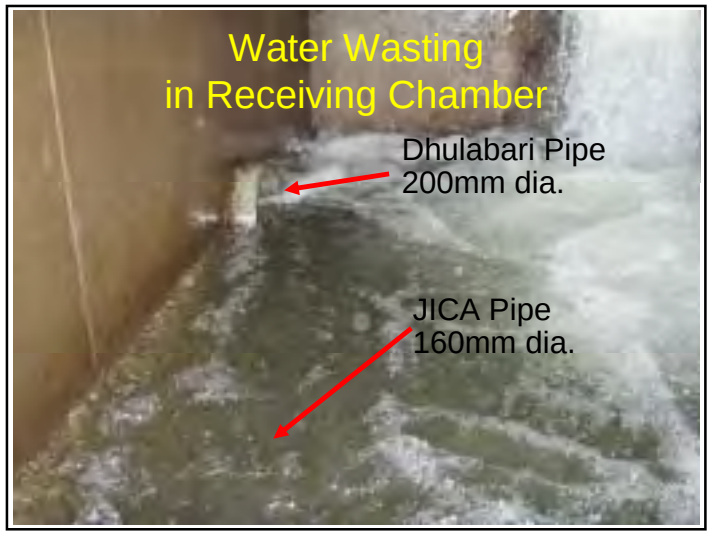

Inside Cannel


Cannel at Intake Site

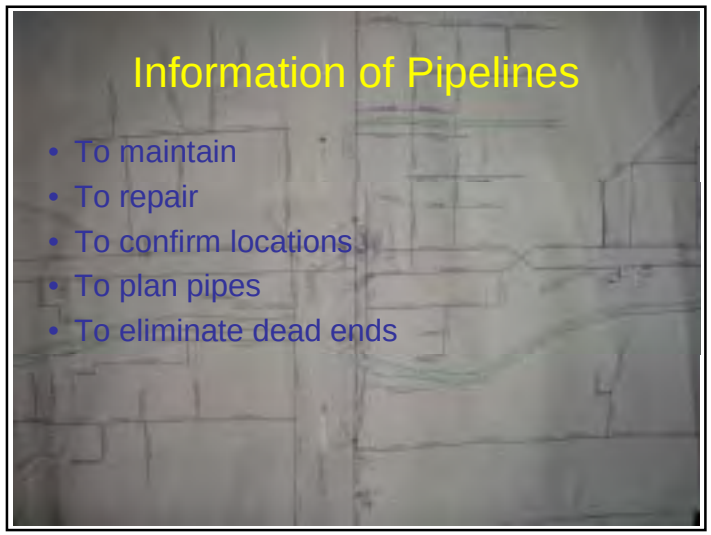

Cannel at Intake Site


Disconnected Pipeline
• Cut Law Water Transmission Pipe (WUSC)
Missing!


Disconnected Pipeline


Water Wasting
in Receiving Chamber
Dhulabari Pipe
200mm dia.
JICA Pipe
160mm dia.


Disconnected Pipeline
Water Wasting


Information of Pipelines
• To maintain
• To repair
• To confirm locations
• To plan pipes
• To eliminate dead ends

Draft Guideline

for

WUSC Management Model and Support Model

(Draft 11/15/2012)

Summary of WUSC management model

- Management essentially means manage PDCA cycle
- To-Be model of WUSC is:
  * Provide safe water, affordably, stable way to maximum people with reasonable price
  * Manage efficiently (NRW<15%, etc.)
  * Financially always maintaining positive cash balance
  * Gradually introduced full cost recovery
- For realize To-Be, consider:
  * Capacity of facility
  * Financial capability
  * Operational capability
    * Institutional setup
    * Business operational skill
    * Leadership and problem solving skill
    * Computerization
- For strengthening functional capability:
  * Job process standardization using SOP, manual and guideline and training

Summary of WUSC support model

- Supporting implementation of WUSC's business plan
- Support to:
  (1) Advisory service
  * Provide management advisory
  * Provide technical advisory
  * Provide financial advisory
  (2) Provide financial assistance
  * Grant/ zero interest or low interest loan
  * Windows of other financial assistance program
  (3) Provide physical assistance (facility and material)
  (4) Provide chance of information exchange

and make success to implementing and realize their To-Be

Agenda

1. Some misunderstanding to management model
2. WUSC management model
3. WUSC operational capability strengthening model
4. WUSC support model
5. M&E

1. Some misunderstanding to management model

- SOP or standardized job process is not management model
  - There is no SOP for management, because management is adaptation to management environment
  - There is standard
  - There is best practice
  - But planning and skill are necessary for adaptation to management environment
- Business plan is not management model
  - It is method/approach for realize ideal status

2. WUSC management model

. Ideal state of WUSC
-WUSC provides safe water affordably in stable manner, to maximum people in their jurisdiction with reasonable cost

. Realized targets mentioned on the business plan
- Coverage ratio
- Production and distribution capability of safe water
- Management efficiency
- Financial capability
  etc.

2. WUSC management model

- Safe water: Water quality test meets WHO standards?
- Affordably: 125 litter per capita per day (e.g.), but requires **sufficient capacity of facility**
- In stable manner: 24 hours water supply with sufficient pressure.), but requires **sufficient capacity of facility** (e.g. 25 litter per second pumping)
- To maximum people: 100% service coverage ratio
- Reasonable cost: 50 Rupee for first 8 cubic meters (e.g.), but this requires **efficient management with sufficient financial capability** (e.g. NRW is less than 15%)

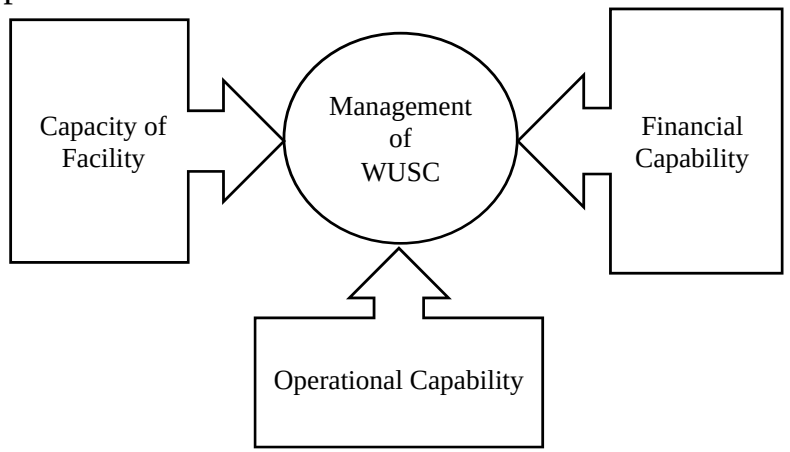
2. WUSC management model

. Realize the target mentioned on their business plan
- Coverage ratio
- Production and distribution capability of safe water
- Management efficiency
- Financial capability
  et.

. Realizes business plan means:
- Capacity of Facility
- Financial Capability
- Operational Capability

2. WUSC management model

- For realizing ideal status, it may necessary to enhancing 3 capabilities



Capacity of facility

Water Demand

- Service coverage
- Population served
- Consumption per capita per day

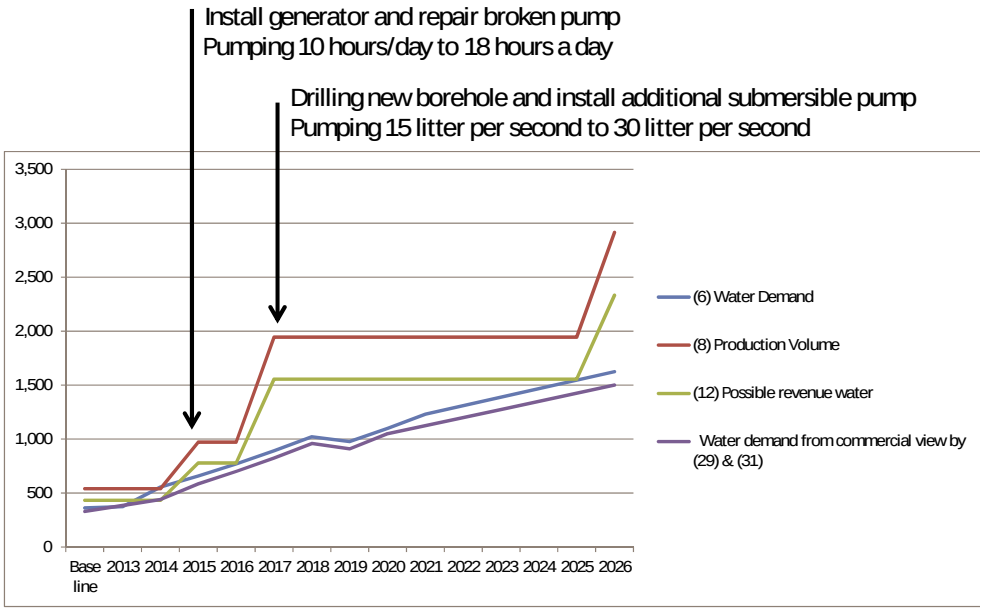
Capacity of facility

- Water resources
- Capacity of intake facility
- Capacity of purification facility
- Capacity of pipeline network
- Leakage and loss
- NRW/UFW

Capacity of facility

For achieving, always capacity of facility is equal or exceed with water demand:

-Keep maintaining facility in best condition
-Keep investing for enhance capacity of facility (with construction of new facility, rehabilitation, renovation using capital investment)
-and these two are main objectives for achieve in technical



Case of Lakhanpur WUSC

Financial capability

Financial Demand	Financial capability

(Capital cost)
- Cost of construction project
- Cost of building and office furniture
- Cost of vehicles

(Operational cost)
- Salaries and wages
- Power and fuel for pumping
- Chemical
- Repair and maintenance
- Office management

(Other cost)
- Financial cost, if any

- Revenue from sales of water and service
  - Water rate
  - Collection efficiency
- Revenue from annual membership due
- Grant and subsidiary
- Deposit
- Accounting accuracy
- Loan repayment, if any

Financial capability

For achieving, always financial capability is equal or exceed with financial demand:

-Maintaining water rate in sufficient level (for improving water rate time to time) for cost recovery of operational cost (and full/part of capital cost)
-Arrange necessary capital cost with grant, subsidiary, zero or low interest loan, deposit/donation, if revenue from sales of water is not enough
-Maintaining cash balance always in positive. Never ever be negative cash balance.
-and these two are main objective for achieves in financial plan, and roles of top management.

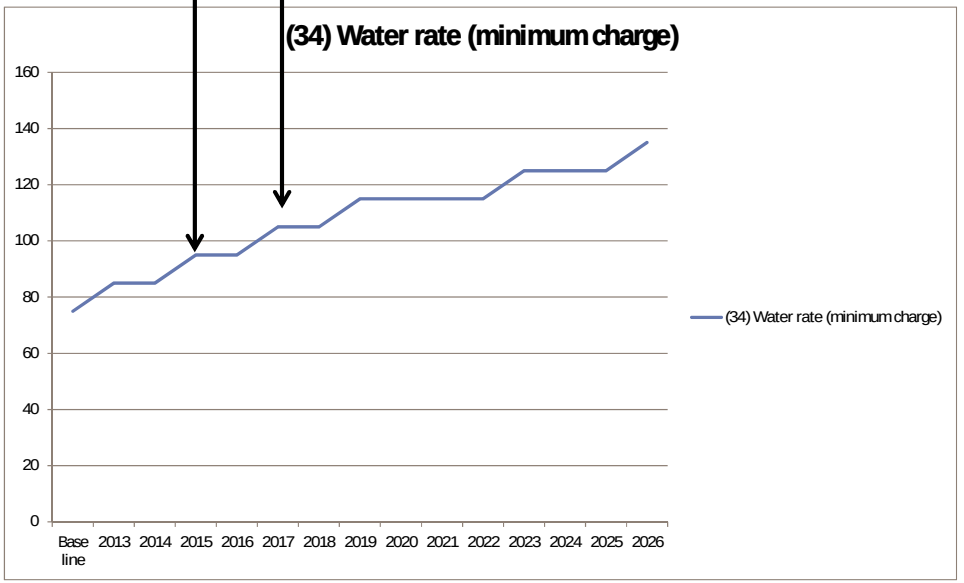
40%of capital cost need to be supported by grant, for maintaining positive cash balance on hand

Could provide full cost from WUSC, however, expect financial support as 10%grant

D: Financial plan	Unit	Base line	2013	2014	2015	2016	2017	2018	2019
(48) Revenue from sales of water	,000 NR/	1,143	1,494	1,708	2,540	3,052	3,939	4,593	4,701
- domestic customer									
- non domestci customer									
(49) Revenue from others	,000 NR/	484	418	478	711	854	1,103	1,286	1,316
(50) Revenue from operational activity	,000 NR/	1,674	1,912	2,186	3,251	3,906	5,042	5,880	6,017
(51) Salaries	,000 NR/	192	269	353	445	545	668	801	946
(52) Power	,000 NR/	163	171	179	286	300	422	443	465
(53) Chemicals	,000 NR/	63	82	86	112	118	124	130	136
(54) Spare parts, maintenance and repair	,000 NR/	55	53	55	120	126	133	139	146
(55) Other O&M and administration	,000 NR/	167	193	223	257	295	343	396	458
(56) Expenditure for operational activity	,000 NR/	639	767	896	1,220	1,386	1,689	1,910	2,152
(57) Cash balance of operational activities	,000 NR/	1,234	1,146	1,290	2,031	2,520	3,353	3,970	3,865
(58) Revenue for capital investment	,000 NR/	188	0	0	4,012	0	686	0	0
(59) Capital expenditure	,000 NR/	0	0	0	10,031	0	6,860	0	0
(60) Revenue from financial activity	,000 NR/	140							
(61) Financial cost	,000 NR/	9							
(62) Revenue	,000 NR/	2,202	1,912	2,186	7,264	3,906	5,728	5,880	6,017
(63) Expenditure	,000 NR/	648	767	896	11,251	1,386	8,549	1,910	2,152
(64) Cash balance	**,000 NR**	**1,553**	**1,146**	**1,290**	**-3,987**	**2,520**	**-2,821**	**3,970**	**3,865**
(65) End balance	**,000 NR**	**3,182**	**4,328**	**5,617**	**1,630**	**4,150**	**1,329**	**5,299**	**9,164**

Case of Lakhanpur WUSC

10 Rupee increase for cover capital cost



Case of Lakhanpur WUSC

Operational capability

Demand of operational capability

- Institutional requirement
- Functional requirement
- Requirement of leadership, negotiation and problem solving skill
- Requirement of skills on business transaction management regarding speed, timeliness, accuracy and handling large volume transaction

Operational capability

- Fine institutional set up
- Strengthening functional capability
  - business process standardization
  - training for skill up
- Strengthening leadership skill
- Computerization for improving accuracy, speed and capability for handling large volume business transaction as well as business process standardization

Operational capability

For achieving, always operational capability is equal or exceed with operational demand:

-Standardizing job process
-Recruit and assign right person to right position
-Keep training/re-training and maintaining skill and knowledge of staff in standard level
-Maintaining sufficient size of organization regarding volume and quality of work
-Maintaining morale and motivation of staff with sufficient incentive
-Maintaining labor efficiency and quality of service to user more than standard level
-Governing and controlling quality of work
and these are main objectives and roles of HRM and HRD plan.

2. WUSC management model

- For enhancing organizational capability, standardization may useful approach

Standardization determined by SOP, manual and guideline

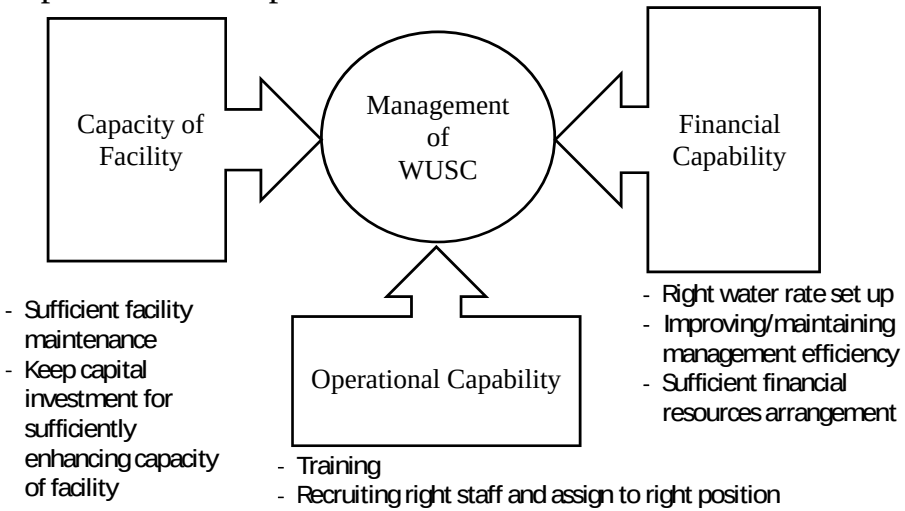
- Organizational structure/team structure
- Job flow
- Protocol
- Format
- Required minimum skill

Job

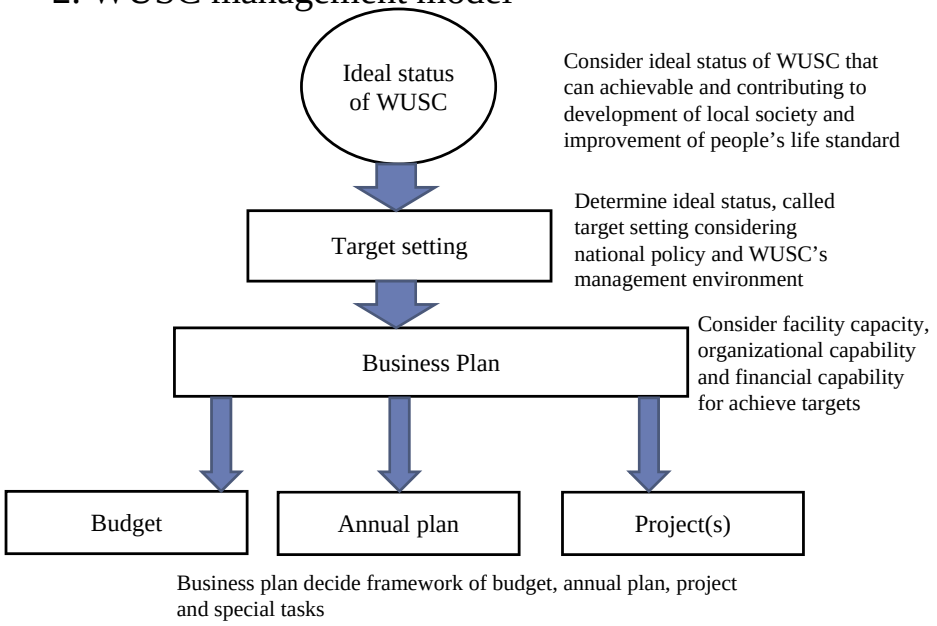
- Team formation
- Job process standardization
- Using standard format
- Training based on SOP, manual and guideline
- Computerization

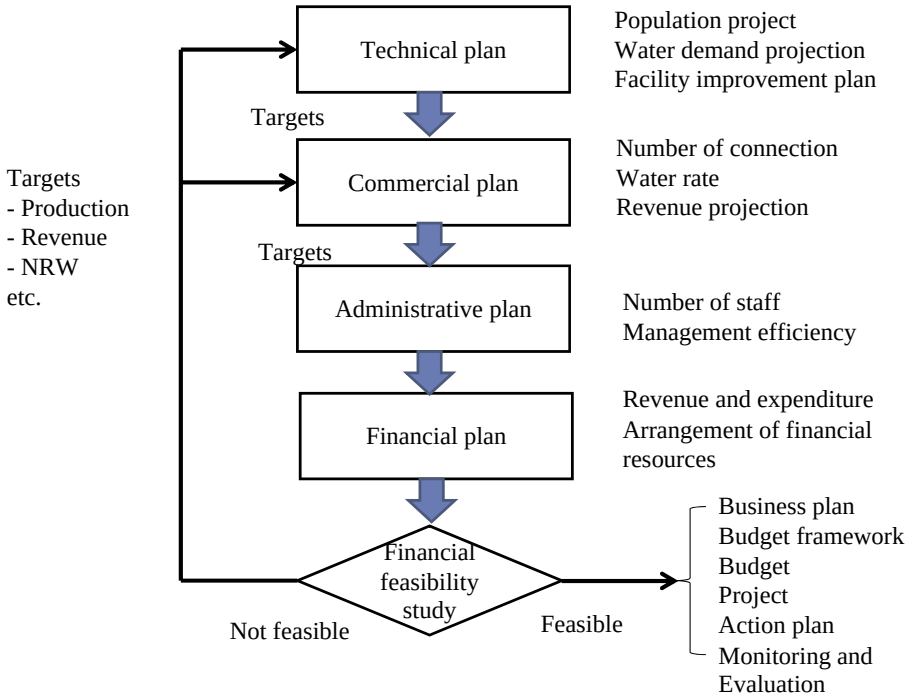
2. WUSC management model

- For realizing ideal status, it may necessary to enhancing 3 capabilities with plan



2. WUSC management model



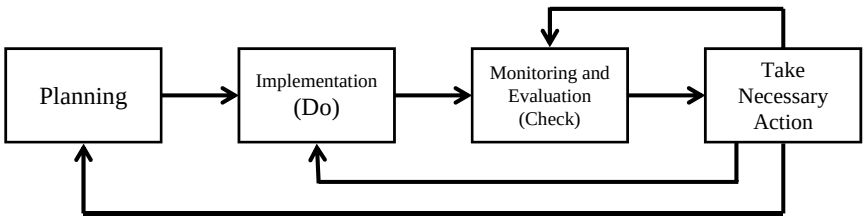


2. WUSC management model

- Business plan
- Annual plan
- Budget
- Project
- Special tasks
- Budget control

Update/revise business plan based on review/evaluation, if necessary

2. WUSC management model – business plan



PDCA cycle management for achieve ideal status

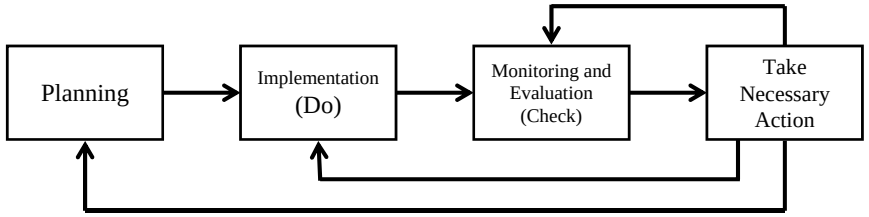
P: Planning

D: Do, implementing

C: Check, monitoring an evaluation

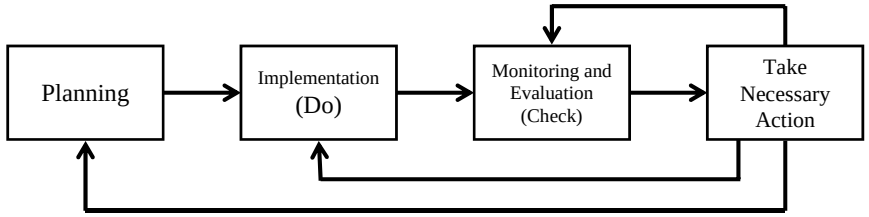
A: Act, take necessary action for keep implementation on right truck

2. WUSC management model – business plan



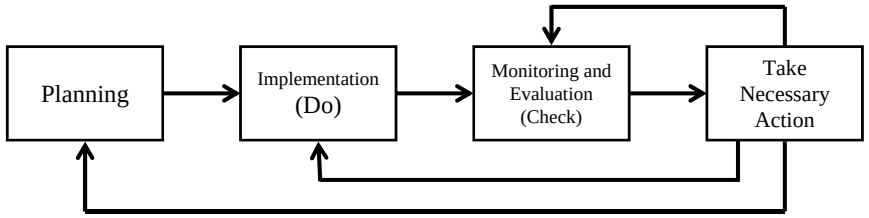
P: Planning
- Analyze the management environment
- Find and determined issues and problems that makes hinder for realize the To-Be of target WUSC
- Find solutions to issues and problems
- Incorporate solution with business plan

1. WUSC management model – business plan



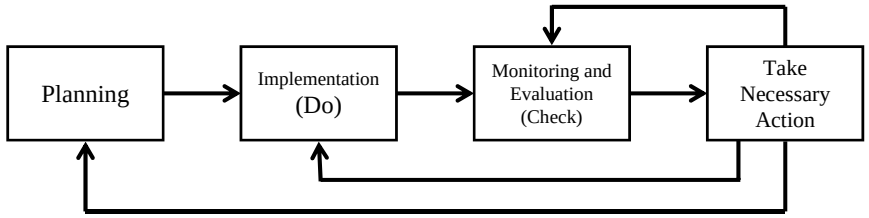
D: Do, implementing
- Prepare action plan (or PO: Plan of Operation)
- Execute action plan as part of activities in the business plan

2. WUSC management model – business plan



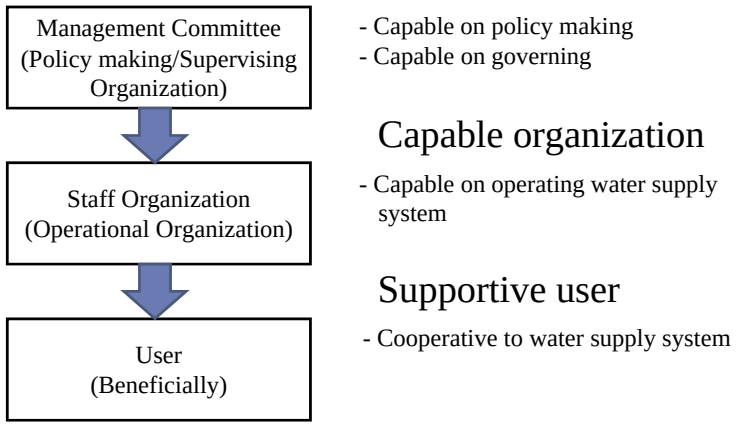
C: Check, monitoring an evaluation
- Monitoring progress and achievement of action plan
- Monitoring performance and results
  both with:
- Monthly (monthly report)
- Quarterly and semi-annually (quarterly report)
- Annually (annual report)

2. WUSC management model – business plan



A: Act, take necessary action for keep implementation on right truck
- Is it necessary to change the action plan and business plan?
- Is it necessary to adjust implementation?
- Is it necessary to adjust M&E indicator?

3.WUSC operational capability strengthening model



Well governing management

- Capable on policy making
- Capable on governing

Capable organization

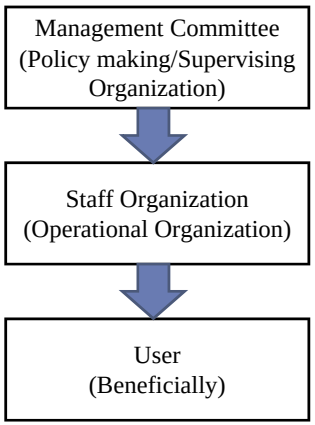
- Capable on operating water supply system

Supportive user

- Cooperative to water supply system

3. WUSC operational capability strengthening model

Capacity Development Model
Training to Management Layers



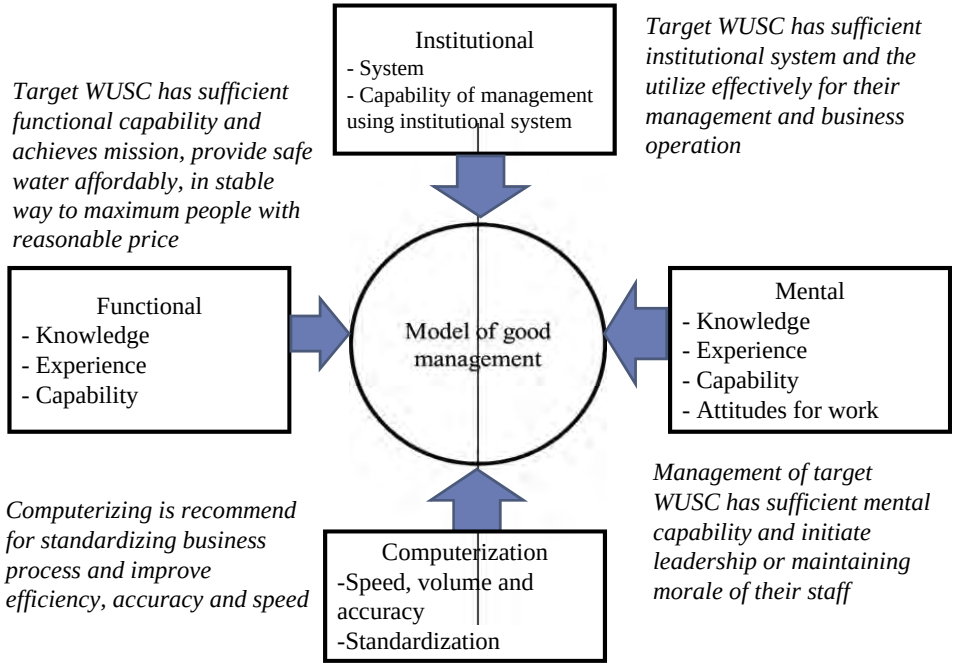
- Training on policy making/supervising for management committee member
- Introductory training for new members

- Training for strengthening operational capability

- Awareness program including roles of water supply for getting their understanding and support

3. WUSC Operational capability strengthening model

Target WUSC has sufficient functional capability and achieves mission, provide safe water affordably, in stable way to maximum people with reasonable price



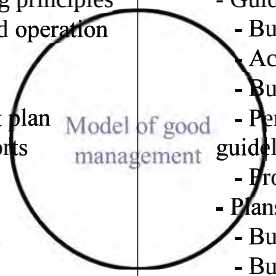
Target WUSC has sufficient institutional system and the utilize effectively for their management and business operation

Management of target WUSC has sufficient mental capability and initiate leadership or maintaining morale of their staff

Computerizing is recommend for standardizing business process and improve efficiency, accuracy and speed

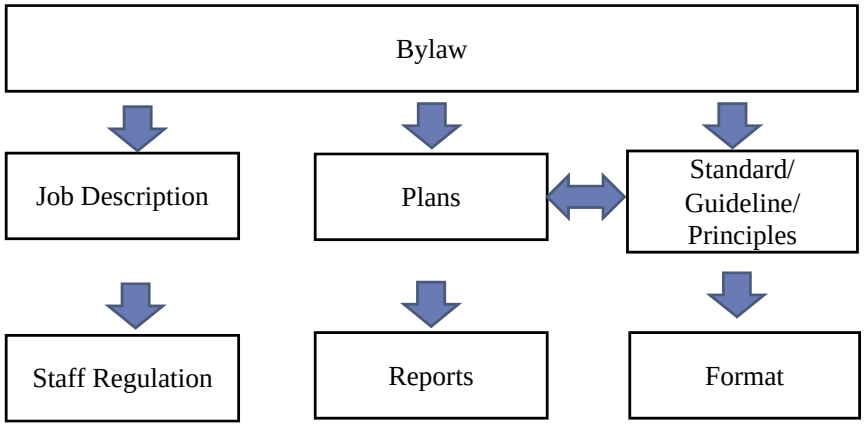
Institutional set up

- Bylaw
- Technical guidelines and manuals
  - Design principles and standards
  - Procurement and bidding principles
  - Facility maintenance and operation manual
- Plan
  - Technical improvement plan
- Record and journals, reports
  - Intake daily report
  - Production daily report
  - Distribution daily report
  - Operation daily report
  - Technical monthly report



- Bylaw
- Staff regulation
- Job description
- Guidelines and principles, manuals
  - Business planning guideline
  - Accounting standard and principles
  - Budgeting guideline
  - Performance appraisal/ evaluation guideline
  - Procurement and stock control manual
- Plans
  - Business plan
  - Budget
- Record and journal, reports
  - Monthly report
  - Financial statements and audit report
  - Annual report
  - Internal audit report

Institutional set up



- What activity staff should be do
- How staff should be work

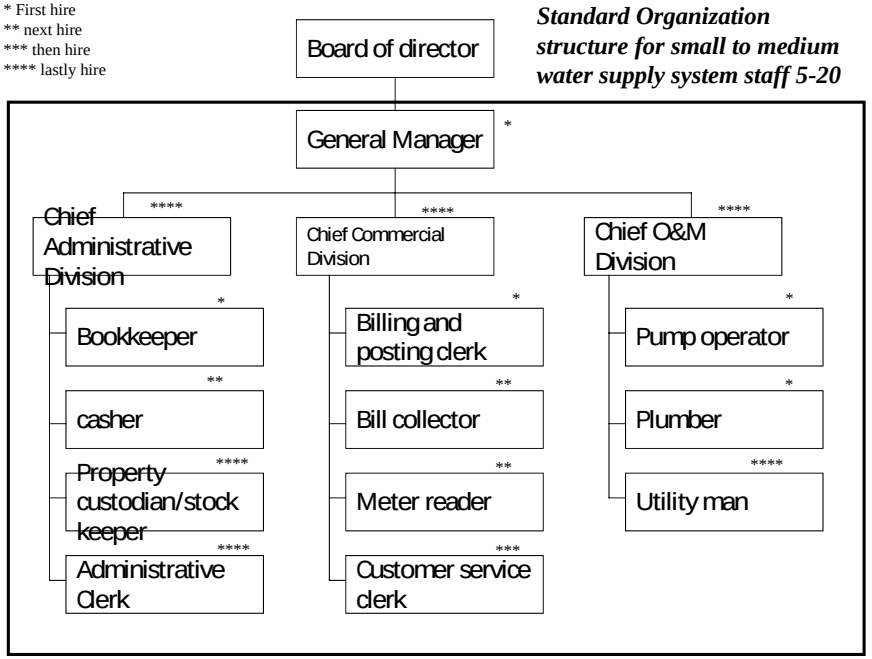
- What activity should be done
- These must monitoring

- How activity should be control their quality
- These must be standardize

Institutional system manage quality of work

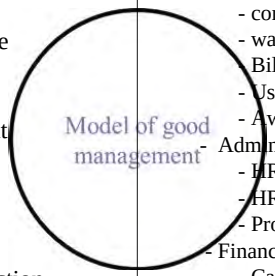
* First hire
** next hire
*** then hire
**** lastly hire

Standard Organization structure for small to medium water supply system staff 5-20



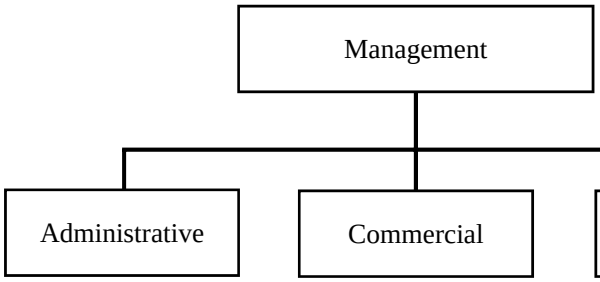
Functional capability

Technical area
- Technical planning
- Intake facility maintenance
- Purification facility maintenance
- Water quality management
- Transmission/distribution facility maintenance
- Water meter maintenance
- Leakage repair
- Sanitation facility construction and maintenance



Non Technical area
- Business planning
- Operation
  - user services
    - marketing
    - connection/disconnection
    - water rate setting
    - Billing and collection
    - User complaints management
    - Awareness program
  - Administrative works
    - HRM and payroll, performance appliance
    - HRD
    - Procurement and stock control
  - Financial
    - Cashier's job
    - Bookkeeping
    - Accounting and financial reporting
    - Budgeting and budget control
- Administration
    - Monthly reporting
    - Annual reporting

Functions and functional capability



- Business planning
- Monitoring operation and performances

- Administrative planning
- Control staff
- Control asset
- Control expenses

- Commercial planning
- Provide service
- Collecting money for service and products

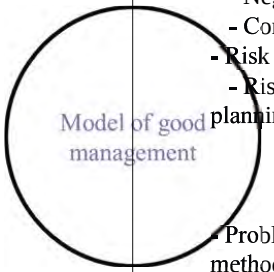
- Engineering planning
- Constructing facility
- Operating and maintaining facility

- For enhancing functional capability, standardization may useful approach

- Organizational structure/team structure
- Job flow
- Protocol
- Format
- Required minimum skill

- Team formation
- Job process standardization
- Using standard format
- Training based on SOP, manual and guideline
- Computerization

Leadership and problem solving skills



- Leadership
  - Leadership
  - Motivating staff
- Corporate communication
  - Negotiation techniques
  - Conflict mitigation
- Risk Management
  - Risk management and contingency planning

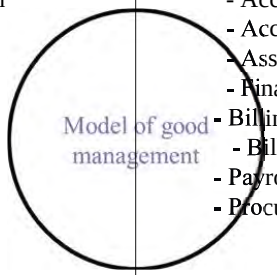
- Problem solving techniques and methodology
  - PDCA cycle management
  - Critical thinking
  - Logical thinking and PCM (Project Cycle Management)
- TQC/QC, TOC

- Sufficient leadership and negotiation/ good communication skill plus problem solving skill may necessary for carry on business plan with standardized functional capability

- Leading to right direction
- Motivating people to move to positive way for harmonization and cooperation
- Solve bottleneck and manage job flow smooth and efficient

Computerization

- Facility management system
  - Pipeline map system
- CAD
- Hydraulic analysis system
- Network analysis system



- MIS
- Accounting system
  - Bookkeeping
  - Account Payable
  - Account Receivable
  - Asset management
  - Financial reporting and analysis
- Billing
  - Billing and collection
- Payroll and HRM
- Procurement and stock control

Computerization improve speed, accuracy and handling large volume of business transaction as well as job flow standardization

Supporting material for WUSC management model

(1) SOP
- Operation and Maintenance of Water Distribution Facilities
- Water Meter Reading and Management for Water Meter Accuracy
- Water Quality Checking and Monitoring

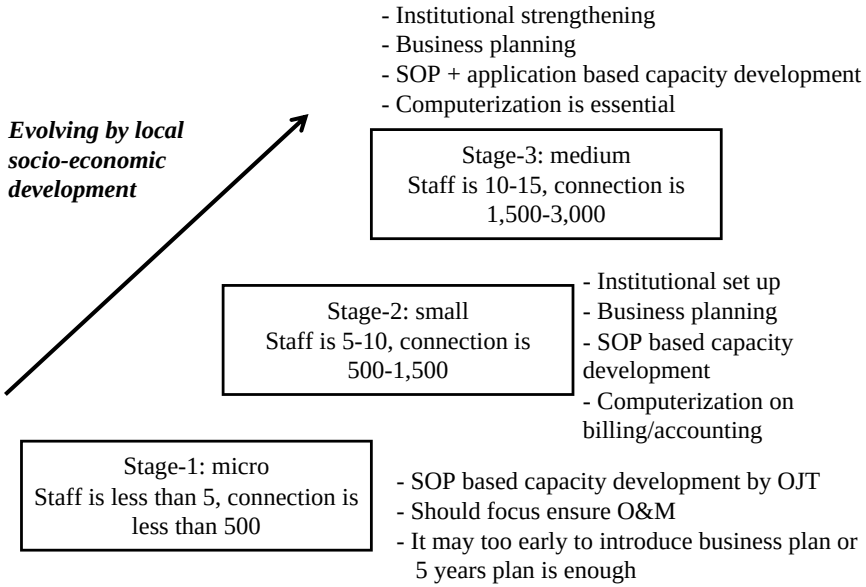
(2) Draft guideline and manual
- Draft manual for user complaints management
- Draft guideline for annual report
- Introducing problem solving techniques using PCM

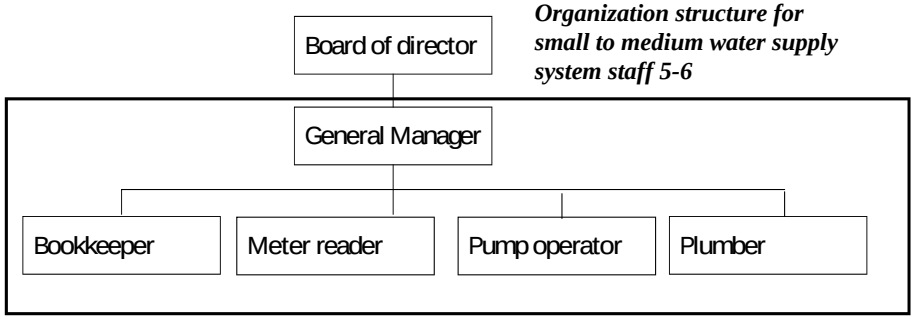
(3) Workshop material and samples
- Business planning (technical planning)
- Business planning (non-technical planning)
- Sample of business plan (Dhulabari WUSC)
- Monthly report
- WUSC management model and support model
- Awareness program

Comments for micro WUSC:

-These model and sample is for small and medium size WUSC, not for micro size WUSC, less than 5 staff and less than 500 connections
- For micro size WUSC, it may need different approach

Stage of organizational development:





Flat, though recommends to consider structure

Management Model of WUSC (Institutional) set up for organization of 5-6 staffs

Technical area
- Bylaw
- Technical guidelines and manuals
  - Facility maintenance and operation manual (SOP)
- Record and journals, reports
  - Production daily report
  - Pump operation daily report
  - Technical monthly report

Non-technical area
- Bylaw
- Staff regulation
- Job description
- Budget
- Record and journal, reports
  - Monthly report
  - Financial statements and audit report
  - Annual report

Management Model of WUSC (Functional capability) set up for organization staff is 5-6

Technical area
- Facility operation and maintenance skill with SOP
- Water meter maintenance
- Leakage repair
- Sanitation facility construction and maintenance

Non Technical area
- Connection/disconnection
- Water rate setting
- Billing and collection
- Awareness program
- Procurement and stock control
- Financial
  - Cashier's job
  - Bookkeeping
  - Accounting and financial reporting
  - Budgeting and budget control
- Administration
  - Monthly reporting
  - Annual reporting

Management Model of WUSC (Mental) for small organization

- Leadership
  - Leadership
  - Motivating staff
- Corporate communication
  - Negotiation techniques
  - Conflict mitigation
- Risk Management
  - Contingency planning

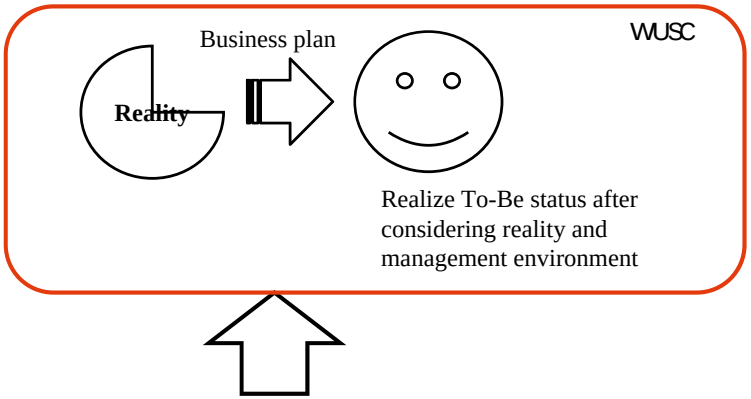
Simple knowledge and skill are recommendable. Also simple contingency plan for prepare natural calamity is recommendable.

Management Model of WUSC (Computerization) for small organization

- Accounting system
  - Bookkeeping
  - Financial reporting
- Billing
  - Billing and collection

Computerization in these area are recommendable, for accuracy and utilize data for planning, but basically daily activity are carried manually

4. WUSC support model



Support to WUSC:
(1)Management consulting service
(2)Financial assistance
(3)Material support
(4)Information exchange

4. WUSC support model

Support to WUSC:
(1) Management consultation
- Advise on institutional build up
- Advise on strengthening/support functional capability
  - Management advisory
  - Technical advisory (advise/assistance to design/cost estimation, technical plan)
  - Financial advisory (advise to financial plan, water rate setting, financial resources arrangement, window of aids)
  - Advise on HRD
    - Recommend training course of CHRDC
    - Provide training/workshop in District
    - Provide OJT

4. WUSC support model

Support to WUSC:
(2) Financial support
- Provide financial assistance for start up the business
- Provide grant to facility improvement (rehabilitation/expansion)
- Provide low interest rate loan (zero interest/less than 5% for more than 10 years, e.g.)
- Introduce aids (as windows, including recommending to agencies, under writing, e.g. ADB/WB/KfW/NGO)
- But financial assistance should consider business plan of WUSC*)

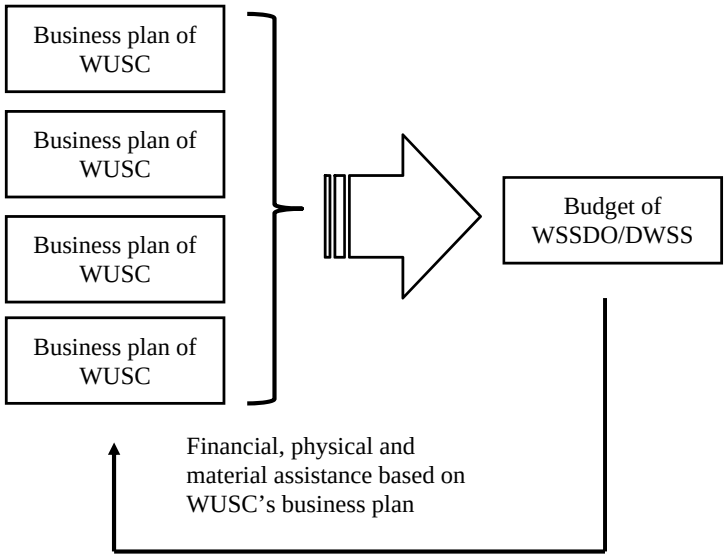
*) DWSS/WSSDO and WUSC should discuss based on the business plan

4. WUSC support model

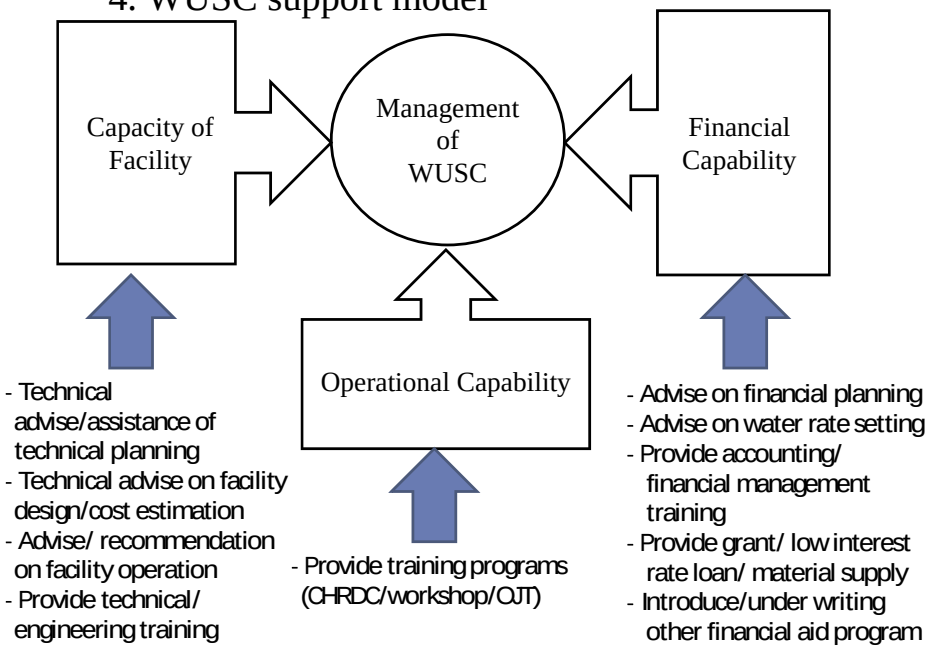
Support to WUSC:
(3) Material support
- Provide material
- Provide physical facilities

(4) Information exchange
- Provide place and chance for socialization/ information exchange between WUSCs, or between DO and WUSCs

4. WUSC support model



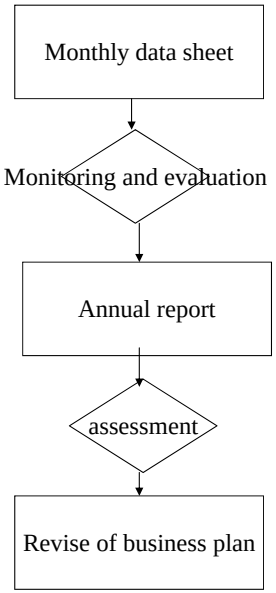
4. WUSC support model



5. M&E

Recommend:
- Monthly review by WUSC based on monthly report
- Annual review jointly by WUSC and DO, based on annual report

5. M&E



- Monitoring performance indicator monthly with monthly data sheet
- Evaluating performance annually with accumulated monthly data sheet and analysis are mentioned on annual report
- Assess performance when revise business plan. Business plan shall revise when significant change may/is happen, or end of target year

5. M&E

	target	JAN	FEB	MAR	APR	MAY	JUN
(1) User services							
1) Number of active connection	2,000						
2) Population served	10,000						
3) Service coverage (%)	65						
4) Water supply service hours (hrs)	18						
5) Number of complaints accepted							
6) Number of complaints solved							
7) User complaint solving ratio (%)	95%						
(2) Water supply							
1) Number of sample test							
2) Number of sample test meet quality standard							
3) Quality standard meet ratio (%)	95%						
4) Production volume (c.m.)							
5) Revenue water volume (c.m.)							
6) Average consumptio volume per connection (c.m./month)	15						
6) Number of leakage repair							
(3) Management efficiency							
1) NRW (%)	20						
2) Collection efficiency (Y-T-D) (%)	95						
3) Connections per staff	150						
4) Operational ratio (%)	200%						
(4) Financial performance							
1) Revenue (,000 R)							
2) Disbursement (,000 R)							
3) Cash balance (,000 R)	positive						
4) End balance (,000 R)							
(5) HRM							
1) Number of staff							

Monitoring sample format

5. M&E

Assessment:

(1) Achievement of previous plan

- Progress of construction project
- Connection
- Water consumption

(2) Improvement of efficiency target

- Water quality meet rate
- NRW, connection per staff, collection efficiency
- User complaints response rate

Summary of WUSC management model

- Management essentially means manage PDCA cycle
- To-Be model of WUSC is:
  * Provide safe water, affordably, stable way to maximum people with reasonable price
  * Manage efficiently (NRW<15%, etc.)
  * Financially always maintaining positive cash balance
  * Gradually introduced full cost recovery
- For realize To-Be, consider:
  * Capacity of facility
  * Financial capability
  * Operational capability
    * Institutional setup
    * Business operational skill
    * Leadership and problem solving skill
    * Computerization
- For strengthening functional capability:
  * Job process standardization using SOP, manual and guideline and training

Summary of WUSC support model

- Supporting implementation of WUSC's business plan
- Support to:

(1) Advisory service
 * Provide management advisory
 * Provide technical advisory
 * Provide financial advisory

(2) Provide financial assistance
 * Grant/ zero interest or low interest loan
 * Windows of other financial assistance program

(3) Provide physical assistance (facility and material)

(4) Provide chance of information exchange

and make success to implementing and realize their To-Be